

FEBRUARY, 1953

BUTANE-PROPANE

News

Headquarters for L.P. gas Information Since 1931



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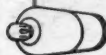
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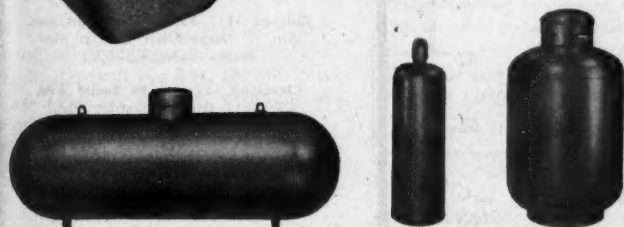
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TRUCKS
MORE
EFFICIENTLY



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METERS
PERIODICALLY,
BILL
MONTHLY

USE METERED
SERVICE
TO SELL
NEW
ACCOUNTS



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SERVICES
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AND MORE GAS
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BUTANE-PROPANE

News

NBP

VOLUME 15

NUMBER 2

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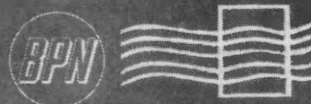
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LETTERS



Headquarters
for L.P. gas Information
Since 1931

Wisconsin

Please answer the following questions:

What is cost comparison for space heating, oil fired central heating plant vs L. P. gas unit heaters, 131,000 Btu oil at .144¢ per gallon; propane at 14¢ per gallon?

What is cost comparison, incidental advantages, steel cutting, propane at .03¢ per lb., acetylene at \$2.95 per 100 cubic feet?

B.O.

Based on heating value and efficiencies only, the prices you have submitted in your letter are not favorable to L. P. gas. However, L. P. gas need not be sold on price alone. There are many advantages of L. P. gas to promote its use over lower priced fuels. Some of these advantages are:

1. Cleanliness.
2. Simpler and closer control of temperature.
3. No outages caused by failure of electric power or other utilities.
4. No electric power required to operate the fuel pump and/or burner.
5. L. P. gas is a clean burning fuel and does not require burner maintenance as oil does.
6. One fuel supply to serve cooking, water heating, space heating, and other fuel consuming equipment such as tractors, brooders, trucks, pumps, etc. (even lighting).

Efficiencies vary with the make and type of appliance, but we believe 70% for gas and 60% for oil are conservative and fair. The heating value of a gallon of propane is 91,300 Btu per gallon and that of furnace oil is about 131,000 Btu per gallon. In order to make a simple comparative table of fuel costs, Table 1 is based on 1,000,000 Btu.

We do not have any information which would establish exact price advantages of L. P. gas over acetylene in the flame cutting of steel. Based on the heat delivered by the two gases and the prices which you quote, the cost of acetylene is approximately \$19.70 per 1,000,000 Btu and propane is \$11.83 per 1,000,000 Btu.

L. P. gas has some advantages over acetylene for cutting steel. The chief advantage is the accuracy and cleanliness of the cut which can be made with propane.

TABLE 1

	Oil	Propane
Gallons of fuel containing 1,000,000 Btu.....	7.64	10.95
Efficiency of combustion in modern heating appliances.....	60%	70%
Gallons of fuel required to deliver 1,000,000 Btu at efficiencies listed.....	12.71	15.65
Price per gallon, cents.....	14.4	14
Cost per 1,000,000 Btu delivered to room*.....	\$1.83	\$2.191

*The cost of power to operate the oil burner is not included in these prices.

Closer tolerances can be maintained with propane and less slag will adhere to the edges of the metal, thereby providing sharp square edges; also, sheets can be stacked and cut with less tendency to stick together because of slag formations.

On the other hand, acetylene provides quicker ignition and start of cut than propane, although after ignition the relative speeds of cutting are about equal.—Ed.

Nebraska

We are thinking about launching a program of metering L. P. gas and thought you might possibly be of some help to us and offer us some sound advice.

We are contemplating going into such a program in conjunction with our cylinder and bulk tank operation, and we would appreciate it if you would give us any advice or suggestions that you might have to give us concerning such an operation.

Specific questions that we have are—how much of an installation charge should be made, on what size tank, and what type of meter to use. By that we mean—is it best to bill the gas by the cubic foot or by the gallon. Also, we would like to know how to arrive at a charge per unit of measure—how a price is determined. Do you think it wise or unwise to attempt to meter L. P. gas?

At the present time we are both selling and leasing bulk storage tanks. We lease all of our 100 lb. bottle set-ups. However, we are firmly

convinced that the L. P. gas industry must soon go into a metered gas service program and therefore, we are thinking about this and formulating our ideas whereby possibly we can get into this and be the first in our area.

Most of the installations that we think would be metered would be the 500- and 1000-gallon tanks where the load is heavy enough to warrant a bulk tank installation, and where the load is used for cooking, or cooking and hot water, we would install a 420-lb. stationary cylinder with the meter.

We believe that metering has many advantages—mainly we think that if we bill our customers by the cubic foot we might get a better rate for the gas than we can by selling it by the pound or by the gallon.

Also, we think that if an installation charge could be gotten down to fit the realms of the people's pocket book, a program of metered gas service for people outside the gas mains would be quite attractive and draw considerable notice among potential customers.

N. H.

Many companies are selling L. P. gas on a metered basis and find it advantageous. There are several advantages. Some of these are:

1. Customer pays for the gas as it is used each month; smaller regular monthly payments.
2. Permits better scheduling of fuel de-

livery since customer is not concerned with payment at time of delivery.

3. Customers' tanks can be used in a limited manner to help balance the load between summer and winter and to augment your central storage.

4. Multiple family dwellings can be serviced from one storage vessel.

5. A sliding scale structure to benefit large quantity consumers over those using L. P. gas for cooking only.

Some disadvantages are:

1. Additional cost of installation which must be charged to the customer or absorbed by the dealer as capital investment.

2. Necessitates use of two storage systems for customers who use it for household purposes and for motor vehicles such as trucks and tractors.

3. Periodically (5 to 10-year periods) meters must be tested and proved. Some states have laws requiring that the meters be replaced within limited periods and taken to a recognized station or laboratory where they are tested for accuracy and needed repairs are made before they can be returned to service.

There are several companies which manufacture a small, relatively inexpensive meter for L. P. gas service such as you anticipate. Some of these companies are:

American Meter Co., 1513 Race Street, Philadelphia, Pa.

The Pittsburgh Equitable Meter Div., Rockwell Manufacturing Co., Pittsburgh 8, Pa.

The Sprague Meter Co., Bridgeport 4, Conn.

There are several factors which must be considered when determining the price rate on a metered system. They are:

1. Cubic feet of L. P. gas vapor obtained per gallon of L. P. gas. This volume must be determined on some standard basis such as 60° F temperature and absolute atmospheric pressure such as 14.7 lbs. per square inch absolute.

2. Correction or allowance in price structure for maximum and minimum temperatures of the gas passing through the meter.

3. Correction for altitude. The higher the meter is located above sea level the greater the volume of gas passing through it per gallon of L. P. gas.

4. Pressure correction for pressure of gas passing through the meter.

These factors may all be determined and incorporated into one multiplying factor to set up the price structure. Gas rate should also include all other factors which are normally considered in establishing a customer fuel price.—Ed.

Illinois

I would like some information on measuring butane-propane gas.

In gas pumped from a truck, can it be measured accurately or is it better to have a meter on the supply tank?
M.S.

L. P. gas can be measured through a meter mounted on the delivery truck if it is installed in a proper manner. It is necessary to use a pump, by-pass relief valve and back pressure or differential valve to meter the liquid gas correctly.

The "Handbook Butane-Propane Gases" illustrates and describes the use of meters

on delivery trucks in Chapter 3, Part 4, Page 118 of the Third Edition.

Also the manufacturers of pumps and meters have information which they will furnish to purchasers of their equipment to illustrate the proper method of installing it.—Ed.

Florida

I have your "Handbook Butane-Propane Gases," Third Edition, which I admit is rather old. This is not in the nature of a complaint but a request for help and a better understanding of its contents. I find that the book, having been compiled by college men, naturally contains mostly college terms and most of us in the active part of the L. P. gas industry are lucky to have an eighth grade education, and the terms in the book are a little deep for us.

I would like a little help at present on Poles' formula starting on page 319, Part 8, Section 2. On pages 320 and 321 are two sets of tables, one to be used with the other.

So far I have been unable to make heads or tails of either one. Have you at present a more simple table or some clue as to how to use the ones mentioned?

On page 322 there is an example, or Example No. 1, and the solution. As I understand it, it is to divide 62,083 by 1.16 x 300 and they get an answer of 3329. I wonder if you can give me a step-by-step process as to how they arrive at this figure, as using all the figures I have at my disposal up to the eighth grade, I cannot get anywhere close to their figure.

I am sure that there are quite a few others in my same position that would appreciate a little help on things in the book that are a little over their heads.

J.G.

The latest (1950) edition has dropped Poles' formula and the two tables to be used with it and in their place are two tables from which flow, required pipe size, or estimated pressure drop can be determined. They have eliminated nearly all the complicated calculation.

We also wish to refer you to the March 1950 issue of "Butane-Propane News" in which appeared a chart for sizing low pressure piping with a complete explanation on its use. This chart accompanies an article entitled, "How to Figure Pressure Drop in Gas Pipelines," by P. E. Gray.

Now going back to Poles' Formula, we will follow through with the example.

The formula is, as you see, $Q = 1350 \sqrt{\frac{d^5 h}{sl}}$ which for convenience may also be written $Q = 1350 \sqrt{\frac{d^5 h}{sl}}$

The explanation for each symbol or letter follows the formula. The symbol $\sqrt{\quad}$ indicates that the square root of the numbers under it must be taken.

Referring to the example we find each symbol has the following value:

$d = 4$ inch standard pipe which has an inside diameter of 4.026.

d^5 means that the value of the pipe diameter must be raised to the 5th power, that is it is multiplied by itself five times.

$h = 2$ inches of water pressure drop.

$s = 1.16$ the specific gravity of the gas in the line.

$l = 300$ yards the length of the pipe.

Then substituting the above values in Poles' Formula:

$$Q = 1350 \frac{\sqrt{d^5 h}}{\sqrt{sl}}$$

$$Q = 1350 \frac{\sqrt{(4.026)^5 \times 2}}{\sqrt{1.16 \times 300}}$$

Now 4.026 raised to the fifth power or multiplied by itself five times equals 1058. And $1058 \times 2 = 2116$. Taking the square root of 2116 = 46. If you wish, refer to a table of squares and square roots.

And the quantity $\sqrt{1.16 \times 300} = \sqrt{348} = 18.6547$

$$\text{Then } Q = 1350 \times \frac{46}{18.6547}$$
$$\frac{46}{18.6547} = 46 \div 18.6547 = 2.465 \text{ and}$$

$$1350 \times 2.465 = 3329 \text{ cu. ft. per hour.}$$

The table No. 3, page 320, helps solve the problem by providing the solution of $1350 \times \sqrt{d^5 h} = 1350 \times 46 = 62,083$. Refer to table No. 3 and opposite 2.0 (under values of h) and under 4 in. pipe is the quantity 62083 the product above.

$$\text{Then } 62083 \div \sqrt{1.16 \times 300} = 62083 \div 18.6547.$$

We agree that the formula was developed by college men, but it requires such men to uncover these secrets so that they can be of use to us. These same men also strive to simplify these formulas and produce simplified charts and tables. Sometimes this is a progressive series of simplifications such as has happened in the case of pipe flow charts included in the "Handbook Butane-Propane Gases" and "Butane-Propane News."—Ed.

Massachusetts

We need to know the exact specification of the propane we handle. Can you tell us a good method for determining the quality of the gas we buy?

We would appreciate a reply telling us of such a method or a company that is in a position to help us.

G.C.T.

Every shipment of LPG from a refinery or natural gasoline plant varies somewhat in the amounts of butane and propane included. Your shipper is the only one who could give you an exact specification for a given shipment. Your supplier will furnish this information if you request it.

Methods for making analyses of the fuel and determining fuel specifications have been developed by the Natural Gasoline Association of America, 1122 Kennedy Building, Tulsa, Okla., and the California Natural Gasoline Association, 510 W. Sixth St., Los Angeles. Some of these have been summarized on page 72 of our "Handbook Butane-Propane Gases."—Ed.



Editorial Comment

POSSIBLY THE SOREST SPOT in the liquefied petroleum gas industry is starting to heal with the rapidity that follows the establishment of a healthy condition.

It's the fuel storage problem--finding a way to store excess summer supply for excessive winter demand. And the development of underground cavities in salt dome and impervious rock formations appears to be the solution that will give our industry reserve resources to help meet shortages that have occurred frequently in past years.

While far from the whole answer, these huge quantities of fuel that can be safely tucked away in subterranean excavations will give the reserve that can be fed out when demand is greatest.

Still needed are enlarged storage on customer premises, more aboveground storage at distributors' plants, and additional transportation facilities--railroad tank cars and motor transports.

These are coming rapidly. The goal has been well defined, and when an industry knows exactly what it must do and how to do it, the hardest part is solved. Thousands of distributors scattered all over the nation and backed by producer reinforcement programs, will day by day move closer to the great objective of ample supply to all sections at all times.

THAT'S PROGRESS on the economic front.

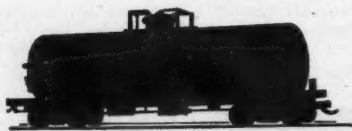
Always needed and always paramount in importance is the improvement of safety practices. That must be an unrelenting campaign--by management, serviceman and user.

The first responsibility rests with the management. Employees must have a good example set for them and then they must be eternally reminded to never overlook a safety precaution that will safeguard employees and customers.

We will soon start a safety series of articles that every dealer can adapt to his business and those who do not already have safety programs will surely be interested.

Ed.

Get those extra gallons



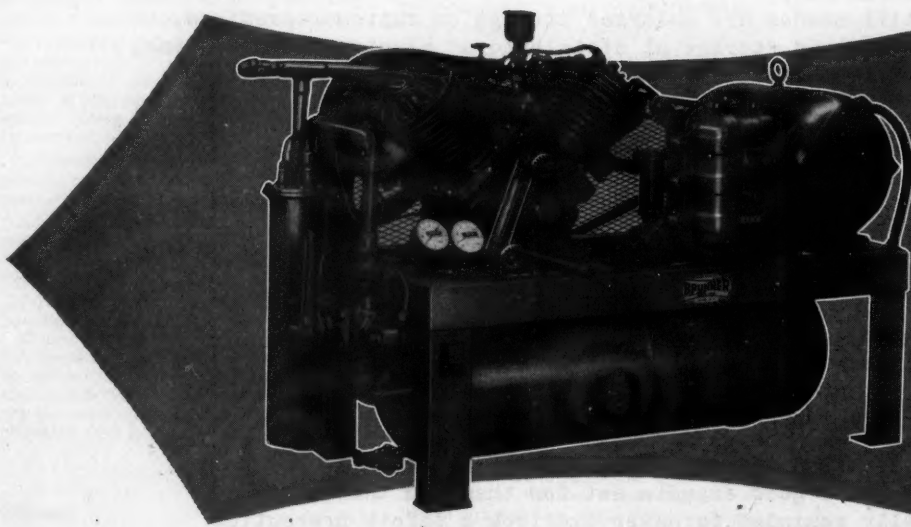
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LP GAS

TRANSFER UNIT

You may be losing up to 540 gallons every time you "empty" a 10,000 gallon tank car — if your transfer pumping unit does not have the ability to remove and liquefy gas vapor! With a Brunner LPG Unit, you can quickly move all liquid to your storage tank and — by a simple turn of a valve — remove remaining residual vapor within tank car down to recommended pressures of 15 to 20 lbs. per square inch. The savings — in time and gallons — soon pay for your Brunner unit — keep on paying big dividends every time you use it!



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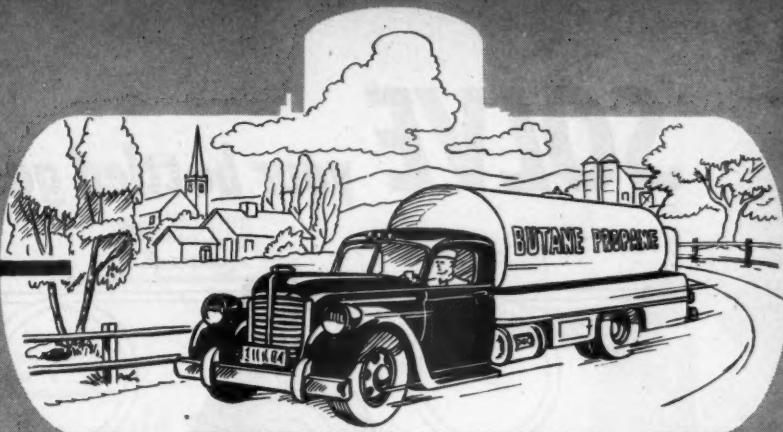
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YOU'LL ALWAYS BE GLAD YOU BOUGHT A

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BEYOND

THE MAINS



Safety — Everybody's Business

Practically every fire or accident that has resulted in connection with the storage, transfer, transportation, or utilization of L. P. gas, has occurred because the person involved has either lacked sufficient knowledge of the product or the equipment or, knowing, has relaxed his precautions and failed to carry out established safety practices.

Every plant operator owes an obligation to the community, to the industry, to his employees, and to himself, to keep his operation safe — to prevent fires and accidents which might endanger a customer or a neighborhood, bring discredit on the industry, injure, cripple or cost the life of an employee, or cause a disaster that might handicap or wipe out his business.

Safety in all phases of the operation is the business of every person engaged in the industry, during every moment of the day. But how can employees maintain safe operation unless they understand the nature and the hazards of the product with which they work, and the functioning of all mechanical units with which it is handled and controlled?

Safe operation requires thorough training of employees, and never-ending vigilance. And because employees sometimes become accustomed to and oblivious of the hazards which surround their work, operations can only be kept safe by responsible supervision. No one man can shoulder this entire responsibility for even a moderate sized organization. The burden of supervision must be spread.

We know that the management of an L. P. gas business is a strenuous occupation, particularly if it is an independent company of small or medium size. The manager's duties are many, and frequently some of them are pressing. Organizing and carrying out a company safety program is only one of his jobs.

Training in safety is one of the essential elements of such a program. This training is accomplished best through employee meetings, and meetings are seldom effective unless they are carefully planned in advance, and then carried out according to plan. Preparing meetings takes time, and if the planner is rushed or is inexperienced in this type of work, the results may still leave much to be desired.

Realizing this, many of the larger operators, with multiple branches, have employed or developed trained safety engineers, who plan and carry out the safety program for the entire organization, and set up the operating rules and safety supervisory procedures.

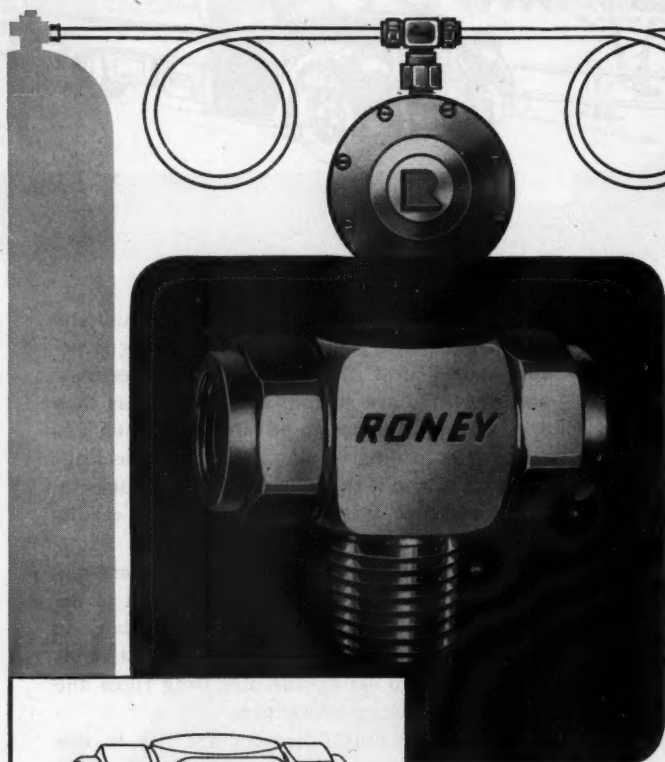
The independent operators are not in this fortunate position. They are "on their own", and must do the best they can, in the time and with the experience that they have available. Time after time, in our contacts with operators all the way across the continent, and from the Canadian to the Mexican borders, they have brought out the need for help in planning and organizing their safety training program.

It should not be necessary for each manager in the business to construct his own safety program. A program that is basically sound for one operation can be adapted to fit the needs of any business in the industry. The planning and programming can be done at one central point, and the results made available to all.

We feel that the preparation and presentation of a continuing safety training program that meets these needs is a logical function of the business publication which serves the industry. This is the thinking behind the monthly safety meeting program series of articles which begins in this issue.

Karl Abell

SOLVE your bottled gas control needs with
the **NEW**



Roney

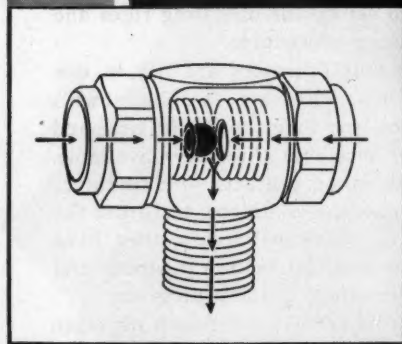
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IN ASSEMBLY WITH No. 60
REGULATOR AND PIGTAILS

Now you can eliminate tee block service troubles completely with RONEY'S new No. 55 T-CHECK MANIFOLD. A stainless steel ball (in place of the conventional phenol disc) provides positive, leak-proof shut-off service. Because it can never be jammed, distorted or otherwise damaged, the steel ball eliminates ALL MAINTENANCE PROBLEMS.

The new RONEY T-CHECK MANIFOLD is now available separately or in Changeover Kits in combination with the popular No. 60 Regulator and Pigtails (1/4" inverted flare connection).



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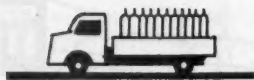


TRAILER MFGRS.

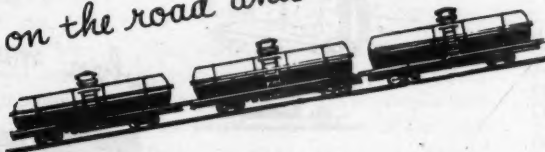




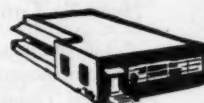
at the refinery



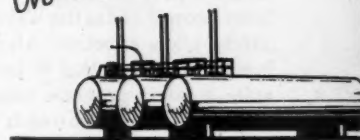
on the road and the rails



at sea



in the bulk plant



SAFETY

IS EVERYBODY'S BUSINESS

By Carl Abell

THIS is the beginning of a new service which *Butane-Propane News* is rendering to the entire L. P. gas industry, to every individual employed therein, and to every customer of every distributor and dealer who delivers fuel, either in bulk or in cylinders. We sincerely believe that it will prove to be the most important contribution that any publication has ever made to the welfare of the industry. It is the first step in an organized and continuous safety training program, which may be incorporated as presented, or adapted with minor changes, to fit the needs of every organization delivering L. P. gas.

The future of the L. P. gas business is more closely bound to safety—or the lack of it—than to any other single operating factor. Accidents have a direct effect on costs and po-

tential profits but, more importantly, every local accident limits the volume of business that may be secured by local companies, and every bad accident, through adverse publicity carried by the national news services, has a detrimental effect on the entire industry.

"Accidents do not happen—they are caused. Those not caused by God are caused by man." This is the insurance company's credo, boiled down to the irreducible minimum. It is also the confession of faith of every experienced safety engineer.

Accidents are preventable. In our industry, as in any, the prevention of accidents is the constant duty of every employee. It is the responsibility of management to see that every employee understands that maintaining safety is a part of his job. He must also understand the hazards which

make the operation potentially unsafe, and what to do to eliminate those hazards. These facts must be brought to his attention clearly, convincingly, and frequently. In addition, it is necessary to exercise constant supervision over safety, both as to conditions and practices. Workmen become accustomed to danger, and this leads to the attitude of, "Why bother? Nothing has happened yet."

The operation of a plant can be kept safe if the management seriously wants it to be safe. But the employees must realize that the management is serious about safety. It must be made everybody's business, and then a practical organization must be cre-



ated to keep it from degenerating to the well known condition where everybody's business is nobody's business.

Experience shows that the only way to make a safety program effective is to create a functioning safety supervision organization within the staff, give it the responsibility for carrying out both safety supervision and safety training, and then see that it carries out its assignment.

Must Be Continuous Program

All of the large L. P. gas distributing organizations carry on such safety programs. Older and larger and less hazardous industries than the LPG carry on such safety programs. Out of the experience of these older and larger organizations, a great deal has been learned about the ways to make safety plans effective. Above all, it has been learned that to produce results, a safety program must be continuous. It must also reach and activate every employee. That calls for organization and planning.

Planning a safety program takes time, and there should be a background of experience behind the plan. Large organizations can maintain full-time safety engineers to develop and handle their programs. In smaller companies, whatever is done about safety is generally the problem of the manager or a key man whose job is something else, and whose duties are numerous, continuous, and pressing. These men need help, particularly in the training activities which form the background for every effective safety program.

There is a great deal of this help available, from many sources—the LPGA, the National Safety Council, from many insurance companies. This material is invaluable, because it is factual and authentic. All of it can be obtained, either free or at a nominal cost. But it still takes time and effort to work it into a practical, resultful training program for one particular plant.

It has been proved that adequate training in safety requires continuous "plugging", and that the program is most effectively carried out by means of meetings. These must be held regularly and continuously, and each meeting should be planned to accomplish a specific end, with a complete program prepared in advance. Planning a good safety meeting requires at



when making deliveries



Let's make SAFETY

least as much time as conducting it. Lack of time for preparation is a severe handicap, often resulting in dull meetings, and depriving the employees of the lasting benefits that come from participation in well-guided discussion.

One Program Every Month

It is to meet the needs of the busy operators who have so little time to prepare their own safety programs that this series of articles is being developed. Each issue will contain a complete program for one monthly safety meeting. This program will present the outline for discussion at the meeting, assignments for study for the next meeting, and a list of pertinent material available from outside sources. In a separate article, the new Safety Department of *Butane-Propane News* will also present a staff-prepared discussion of the subject matter that will be discussed in the next month's meeting program, so all employees will have the opportunity to study their next assignment without knowing in advance how the leader of the meeting will conduct the discussion.

Along with the material prepared especially for the meeting programs, we will continue to print articles

based on the best safety programs that we can find in the industry. These, and the meeting program material to be presented each month will, in the course of a little time, provide a complete safety manual of L. P. gas operation.

To bring the greatest possible breadth of experience and insight into the safety studies, we suggest that each plant operator procure the additional booklets and pamphlets which will be listed from time to time. Because you will be depending on *Butane-Propane News* for a large amount of background material for your safety training program, we also suggest that your employees should be provided with a sufficient number of copies of each month's issue so each member of the staff will have the opportunity to study the next month's assignment, and read the other safety material and other articles that may interest them.

Start Program Working

With the organized safety program available, the next step is to put it to work in the most effective way. It is a fact that the most successful safety programs have been carried out by the employees themselves, with impetus and guidance provided by

the management. The more democratic the program can be made, the more effective it will become.

Elect Safety Committee

The plans which have given the best results have been based on placing the responsibility for the program on a safety committee, the members of which are selected by and representative of all important departments and groups of employees. The election of the committee by the workers accomplishes two highly desirable ends—it heightens the response to the program because the employees feel that it is their own, and it gives the committee members the feeling of responsibility to their fellow-workers as well as to management.

The chairman of the safety com-

pany's activities from the receipt of the fuel to its final delivery, and the installation and servicing of customer's appliances. The chairman of the committee should assume the responsibility for the conduct of the safety training meetings, either presiding or rotating the chairmanship to other members of the committee. If the latter course is followed, the assignment should be made several days in advance, in order to give the member ample time to prepare.

Make Them Sign Up

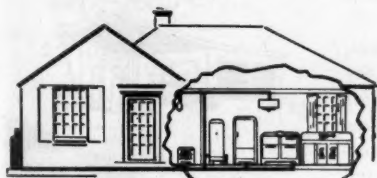
The committee should maintain records of attendance at all safety meetings. This should become a part of the permanent records of the company. The most generally favored method of obtaining this record is by means of a "sign-up sheet" on

ings by reading all available source material.

Pay Employees For Time

It is not possible to develop a satisfactory program on the employees' free time. It must be made apparent from the start that the safety program in its entirety is a part of each employee's job, and the meetings should be held during hours paid for by the company. The hour for holding the meetings may vary, depending on the most practical time in the particular company's operations. An early morning meeting is generally best, as otherwise it is quite difficult to have everybody present. Late afternoon meetings have seldom been successful, as it is almost impossible to secure full attendance.

Everybody's Business



installing appliances

mittee may be elected by the employees, or selected by the committee members. The choice of method should be determined by the employees—never by the decision of the manager.

The duties of the safety committee may be summarized as follows: Supervision of all matters affecting safety in connection with equipment, operating practices, rules, training program meetings; devising a program of recognition and awards to make the safety program as effective as possible; investigation of causes of accidents and taking steps to prevent their recurrence.

Each member of the committee should be made responsible for safety in a specific area, department, or activity, with the assignments divided to cover every phase of the com-



in the home and community

which all employees present write their names. The names of absentees should be noted, and reasons for absence, if known, should be included. Absence without a satisfactory excuse should be cause for a personal interview with the manager, and the habit of absence followed by an accident should lead to serious consideration of the discharge of the employee. In all fairness, excusable absentees should be given every opportunity to make up for missed meet-



on the farm



Employees Should Choose Time

If it is necessary to hold the meetings in the evening, the program should be set up to have a regular meeting night once each month. The time and place of the meeting should be chosen by the employees, and notices of the meeting should be posted prominently for a full month in advance. The employees should be paid appropriately for the time spent in these evening meetings, and it should be emphasized that attendance is a part of the job, even though the pay is extra.

In very large organizations it has sometimes been considered desirable to divide the employees up in groups of not more than 20 men for attendance at most of the safety meetings. The reasons for this are psychological—large meetings discourage free discussion. Many of the employees will hesitate to speak up before a large group, whereas they will be more willing to talk without restraint before a small group, particularly if it is composed of employees with whom they are in daily contact.

Experienced safety engineers consider that the best results are obtained with these small groups, carrying on the routine meetings on that basis, but occasionally bringing all groups together to witness important demonstrations, or to hear outstanding speakers who may sometimes be obtained with the promise of large attendance.

Give Credit When Due

Many plans may be included in the safety program to heighten the interest of the workers. One that should never be overlooked is the recognition of the individual for any worthwhile contribution. The most successful committees are those which take the least credit for their own members, and give the most credit publicly and before the management, to individuals not on the committee. To that end the committee should continuously invite suggestions from other members of the staff, and should ask that these suggestions be put in writing and signed. Reading the suggestions should be a regular part of each meeting. The committee may or may not see fit to act on the suggestion, but the employee deserves credit and recognition for having made it.

To heighten the effect of this practice of recognition, many companies have developed a system of cash awards for outstanding safety suggestions. In organizations which are large enough to develop competition between groups or teams, the contest idea has been quite successful. It puts life and drive into the program. Such a competition should be conducted according to rules which the employees have helped to devise, with a point system including specific credits for accident-free performance, and a method of rating and evaluat-



ing safety suggestions. The rules should be so devised that any team has a fair chance of winning.

In these group contests, some suitable reward should be offered for the team showing top performance for the year, in addition to the features of public recognition. A very successful competitive plan is reported by the Atlantic States Gas Co., a large Eastern operation with numerous branches. Their winning team is given a substantial cash bonus by the company. The team is free to divide or use this bonus in any way the members see fit, but it has been the practice of the winners to use the money to defray the cost of a clam-bake, lobster supper, or some other gala event for the entire organization.

The management feels that this is not only a good feature of their safety program, but also that it is a good investment in employee relations. The local newspapers devote feature space to the party each year, which is good public relations because it emphasizes the safety of L. P. gas.

Other such programs will be reported in this department during the months to come. From these ideas, and from the experiences of operators in the same general locality, each manager will be able to select and

adapt those which seem best suited for the needs of his own organization.

In the meantime, for organizations not already conducting safety meeting programs, it will be necessary to get the employees together and get the program under way. It is suggested that the first safety meeting be held during regular business hours. The management should have a plan of organization of the safety program clearly in mind. This should be presented as a suggestion, on a "what-do-you-think-of-this" basis.

Many managers will talk the plan over in advance with one or more of



the employees who are the natural leaders, arriving at a program which is sure to have their support when it is presented to the group. In some cases, it will be advisable to have the program presented by an employee, or even divided into elements to be presented by several of the key men.

This meeting should bring out the fact that the management is interested in safety, not only from the selfish, financial motive, but also for the benefit of every employee. Since all employees have a personal stake in keeping the operation safe, it is logical that they should conduct the program to keep themselves safe. The plan should therefore be set up to create a working safety organization along the lines which the employees prefer, headed by individuals select-

ed by themselves, and with the expectation that no employee should be saddled with the responsibility for too long a period. Thus, the ground-work is laid for rotation of the safety committee assignments, and the heightening of safety consciousness by all members of the staff.

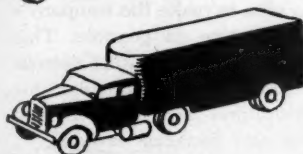
One plan which has been conspicuously effective in connection with the first meetings, after the organization has been set up, is for the whole group to take an inspection trip through the plant, looking for details which do not conform to the highest standards of safety. The good suggestions are given immediate action, or the decision is reached as to procedure and time schedule on matters which will require a little more time.

tween training meetings, going over the suggestions on their merits, acting at once on those that can be carried out by the committee, and recommending to management any meritorious suggestions, the carrying out of which entails expense beyond the authority of the committee to handle.

In all cases, the man who makes the suggestion is entitled to evidence that the committee has considered his proposal seriously and in good faith. If the suggestion has been approved, a suitable report in which he is given personal credit should be made at the next monthly meeting of the group. If it cannot be adopted, he should be thanked for his suggestion, be given the reasons why it cannot be adopted, allowed to express his judgment on any alternate proposal to accomplish the same end, and be encouraged to submit additional proposals

in the future. These details help to keep the interest and enthusiasm of the employees focused on the objective of the program, besides building loyalty to the organization, and to each other.

The suggested program outline for the first meeting of this series appears herein. Background material which the employees may study in preparation for the second meeting is also included in this department, under the heading, "The Nature of L. P. Gas." This plan will be continued through the months to come, providing a complete series of programs planned in advance on the basis of the best experience that we are able to report. It is our sincere hope that this safety meeting plan will enable all distributors and dealers to carry on the highest type of safety work in their organizations.



in power applications



Plan for Safety

The "Butane-Propane News" Safety Department Program will include the following services and features each month:

A suggested outline for a complete safety training meeting to be held by the distributor-dealer during the month following publication, giving the central theme of the meeting, and listing the several points which should be discussed.

A staff-prepared article covering the subject matter selected for the coming month's meeting, with special application to the problems arising in the daily conduct of an LPG business.

References to sources of material for additional study and reports, which may be assigned to individual employees.

Related articles, when available from outside sources, giving viewpoints and recommendations of insurance companies, state and local enforcement agencies, and others competent to discuss the safety problems of the L. P. gas industry.

Reports of successful safety programs which have been carried out by companies in our industry.

A monthly safety poster, dramatizing one subject pertinent to the operation of an L. P. gas business.

The poster appears on the following page. Tear out and post in a prominent place after filling in the date of your first safety meeting.

This starts the program off with a demonstration of immediate tangible results, and shows the employees that the management means business in regard to safety.

The point should be made that safety is not something that we consider once and then forget. Continuous vigilance is required to keep things safe, so it becomes the duty of every member of the safety committee to keep alert to conditions which produce hazards. In addition, all employees are encouraged to submit suggestions, which should be turned in to the committee. The committee should meet occasionally be-



SAFETY MEETING • No.1

Suggested Program

Manager explains why an organized safety program is essential to the continuance of the business, and why every employee has a personal stake in the prevention of accidents and the elimination of conditions which might produce accidents.

Manager outlines suggested plan of organization for plant safety, including proposal for safety committee to be selected by employees, and calls for discussion. After suggestions have been made, proceed to elect safety committee members representing the appropriate groups or activities. Select chairman of the safety committee by a method agreed upon by all employees.

Outline duties of the safety committee, which should include the following:

1. To supervise all matters affecting safety in respect to equipment and operating practices, with specific areas and activities assigned to each member.
2. To review the existing safety rules of the company, and recommend continuance or revision, and to see that each employee is provided with a copy of the rules.
3. To recommend to the management such changes in equipment and facilities as the committee may consider advisable, in the interest of safety, giving reasons for the suggested changes.

4. To conduct a regular, continuing program of safety training.

5. To formulate a plan to make the company's safety program as effective as possible. This should include recognition and suitable awards for accident-free performance and contributions to the safety program, and might also include competitive features and financial rewards, as agreed upon between the safety committee and management.

6. To investigate every accident which occurs in connection with the operation, determine the cause, and eliminate the recurrence of such accidents.

With the chairman of the safety committee presiding, select the date and time for a regular monthly safety meeting.

Announce subject for the next safety meeting, "The Nature of L. P. Gas." Sources of information, *Butane-Propane News*, February, 1952; *Handbook Butane-Propane Gases*, Third edition, Chapter 2, as far as "Transportation"; *Recommended Good Practices for the Storage and Handling of Liquefied Petroleum Fuel Gases*, (Factory Insurance Association), pages 5 to 12.

Close the meeting by taking all employees on a tour of the plant to discover and discuss any conditions which may be considered unsafe, and arrange for their correction.

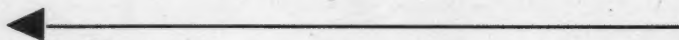
SAFETY

**is Everybody's
Business!**



SAFETY MEETING

Date _____ Time _____



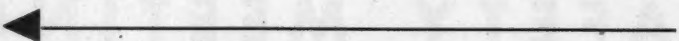
The poster on the other side of this page
is for your use in announcing the Safety
Meeting covering

**"The Nature of
Liquefied Petroleum Gas"**

(See opposite page)

Fill in date and hour of your meeting, and
pin on bulletin board.

** Another poster comes next month.*



The Nature of Liquefied Petroleum Gas

AS RELATED TO ITS STORAGE,
TRANSFER, TRANSPORTATION AND USE

● Material for Employees to Study for Second Safety Meeting

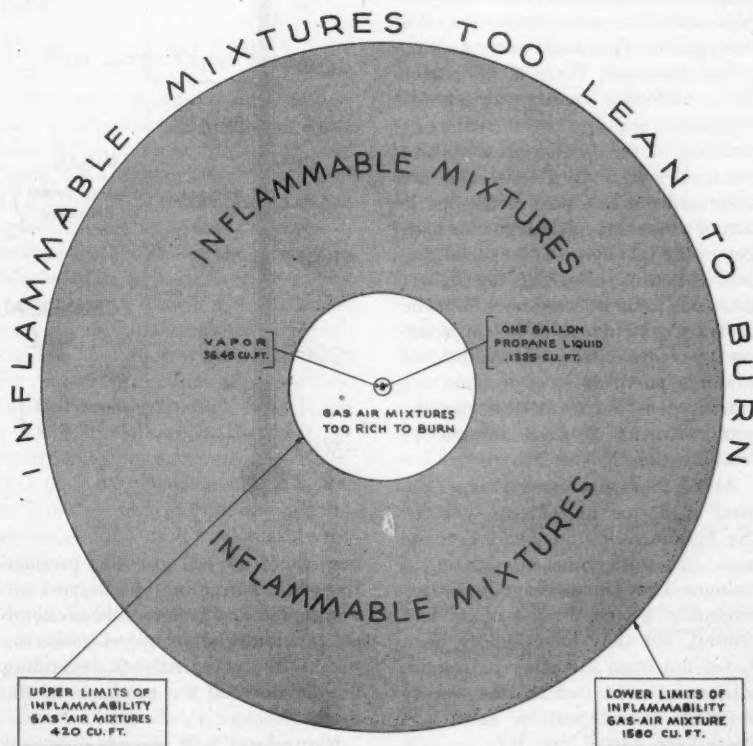
THE starting point of the safe operation of a liquefied petroleum gas plant and business is a thorough understanding of the nature of the product.

Anyone can handle L. P. gas safely as long as it is kept confined in the prescribed containers and controlled by the prescribed and approved equipment, in conformity with the established operating regulations and procedures. All of the codes and regulations governing the construction and use of the storage and handling equipment, and the installation and operation of the utilizing equipment, are aimed at keeping the product under control, or rendering it harmless in case of accidental escape.

Carelessness or Ignorance

The only hazard connected with the fuel occurs when it escapes under dangerous conditions. When this does occur occasionally, it is due either to mechanical failure, which is rare, or to human failure, which occurs too frequently. Human failure may usually be attributed to ignorance or carelessness.

Preventing fire or other accident when fuel escapes is largely a matter of judgment, and judgment can only be as good as the knowledge on which it is based. Judgment enables a man to anticipate what may happen, and take the appropriate precaution or action. He can only do so if he understands why that particular circumstance may occur. So, to operate safely, every employee needs to have a thorough knowledge of the nature of liquefied petroleum gas.



L. P. gas is a highly concentrated form of fuel. For convenience and economy of storage and transportation, it is kept in liquid form. It can be stored and delivered to the customer more conveniently and at less expense. If it contained its own supply of oxygen, it would be explosive within the container.

In order for L. P. gas or any other petroleum liquid to burn, it must be vaporized and mixed with air in cer-

tain proportions, and there must be a source of ignition that is sufficiently hot to start combustion. After burning starts, ignition temperature is automatically maintained, and combustion continues as long as a fresh supply of air and fuel in the correct amounts come in contact with the flame.

It is on these principles of combustion that the usefulness of the fuel depends, and from which all fire and

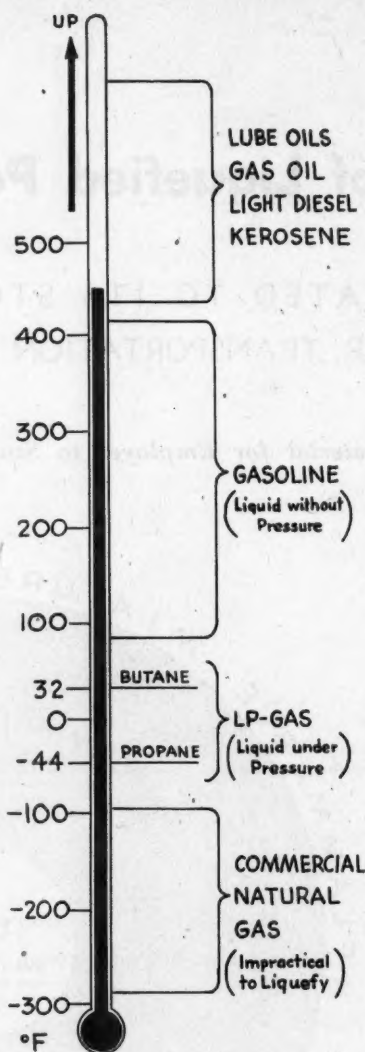
explosion hazards arise. If burned under control, with proper regulation of fuel, air and ignition, and confined to a non-combustible environment, it is perfectly safe. It is only when burned out of control, and in the presence of living or inanimate objects that might be burned or damaged by uncontrolled heat or expansion due to heat, that danger exists.

Characteristics Are Different

L. P. gas has certain characteristics which differ from those of all other petroleum fuels. Physically, it is intermediate between natural gas and gasoline. Its ingredients are predominantly propane and butane, with varying amounts of other related products—principally isobutane and propene—which are so similar that, for most practical purposes in conducting a fuel business, there is no reason for considering them separately.

Butane and propane ordinarily come out of the oil and gas wells as a mixture with natural gas, and are separated out as a part of the operation of preparing natural gas for market, or are recovered by a special process called "cycling" if the lighter gases are to be injected back into the oil-bearing structure to aid in bringing up more crude oil. Additional amounts, particularly of propane, are extracted as a part of the gasoline manufacturing process known as "stabilization."

All of these processes obtain "natural" L. P. gas ingredients—that is, the butane, isobutane, and propane have not undergone any chemical changes. They remain exactly as they originally existed down in the ground, but they have simply been sorted out from the other petroleum substances with which they were formerly mixed just as sand and gravel are sorted out into various sizes for commercial use. Propene, which is very similar to propane, and may be substituted for it for most uses, is a by-product of the cracking processes used in refineries to produce gasoline from products which, in their natural state, would be sold as kerosene, diesel fuel, light burner oil, and similar fuels. The cracking process breaks down large molecules into smaller molecules, and produces a whole range of synthetic products corresponding roughly to the ingredients of gasoline, liquefied petroleum



gases, and natural gas. The propene from this source may be burned under the refinery boilers, sold as chemical raw material, or added to the natural L. P. gas ingredients, depending on the demand for products at the moment.

Natural gas, L. P. gas, gasoline, and the heavier petroleum liquids, are all composed of the same materials, hydrogen and carbon. These two ingredients combine in different proportions to make up molecules of different sizes, which range all the way from the lightest component of natural gas, containing only one atom of carbon and four of hydrogen (CH_4), to heavy, solid components of paraffin and asphalt, some of which contain as many as 80 atoms.

Each of these different sized molecules has a boiling point correspond-

ing roughly to its size and the number of atoms in its structure. Boiling point is the temperature above which a substance is normally in the vapor state, and below which it is normally in the liquid state, at atmospheric pressure. Gasoline, which is a mixture of molecules larger than those contained in L. P. gas, is a liquid under storage conditions, because the temperatures at which its ingredients boil are higher than normal atmospheric temperature. The lightest ingredient in gasoline has a boiling point of approximately 95° F. The next lighter molecule in the series is butane, which has a boiling point of 32°. Propane boils at -44°. The natural gas ingredients boil at still lower temperatures, down to -258° F.

Thus, we see that at all temperatures above 32° F, the natural state of both butane and propane is gas. Below 32° butane is a natural liquid, while propane remains in the gaseous state until it is cooled to -44°, below which it is a natural liquid. These conditions hold true as long as the fuel is at atmospheric pressure—released in the air, and free from the confinement of the tank.¹

Butane and propane are liquefied by the combined effect of compression and cooling. The details of the process are not important to those handling the product. It is sufficient to know that raising the pressure under which it is confined has the effect of raising the boiling point, so

¹ L. P. gas is sold by the producers as "commercial butane," "commercial propane," or "mixture". Commercial butane is no longer used extensively for domestic fuel, except in extreme southern locations, where climatic conditions make its use practical, and early butane storage equipment, inadequate for the storage of propane, makes its use necessary. Since butane does not vaporize satisfactorily at temperatures below 50°, it is not satisfactory where winter temperatures go below that figure for prolonged periods.

In areas where winter temperatures go below 32°, mixtures are not advisable except for summer use, because at lower temperatures only the propane vaporizes, leaving a carry-over of butane in the tank. Propane vaporizes well without heat down to about -20°, so it may be used almost universally.

When reserve storage in large consumer tanks is carried to obviate fuel deliveries in seasons of short supply, propane is the only satisfactory fuel to use. And because the demand for butane by the chemical industries is increasing, more and more of the LPG available for domestic use is propane.

the product can be kept in liquid form as long as the pressure is maintained. Any additional space in the container, beyond that required to hold the liquid, is occupied by the fuel in the form of gas, and this is under the same pressure as the liquid.

The container, and all of the fittings exposed to the tank pressure, must be strong enough to hold the pressure under which it is necessary to confine the liquid. As a practical safety precaution, the codes require that these units shall be built with sufficient strength to hold at least four times the maximum pressure to which the container is likely to be subjected. This is covered in NBFU Pamphlet 58, and by the construction codes of the American Society of Mechanical Engineers (ASME) and the special joint committee of the American Petroleum Institute and the American Society of Mechanical Engineers (API-ASME) which was set up to establish a mutually agreeable code for unfired pressure vessels used in the petroleum industry.

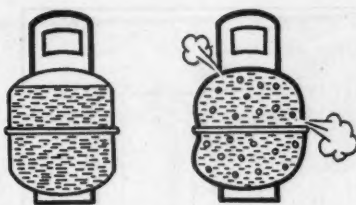
The bursting or rupturing of one of these containers, which might cause the escape of a large amount of gas, could lead to a disastrous fire or explosion, so it is necessary to follow certain precautions in the use of the storage containers.²

Like any other liquid, L. P. gas expands and contracts with changes of temperature. A gallon of LPG at 60° will expand to more than a gallon at 100°, and shrink to less than a gallon at 30°. Liquid is noncompressible, and its rate of expansion with increased temperature is greater than the rate of expansion of steel.

If we fill a container completely

²In the early days of the industry, a great many tanks were produced to hold butane. They were designed for working pressures of 80 lbs., and while this was adequate for butane, the storage of propane, or mixtures, in these light-weight tanks is hazardous because of the higher pressures which are certain to develop. Under no circumstances should any fuel except butane be put into these tanks. Insurance companies are very particular on this point.

It is no longer permissible to install tanks made to butane specifications for L. P. gas service, because of the extent to which propane has come to replace butane for domestic and industrial fuel. From this time on, all tanks must be manufactured for propane, and the specification plate on the tank will show that its working pressure is either 200 or 250 lbs.



LPG containers showing (left) properly filled cylinder with space above liquid for expansion and (right) the results of raising temperature of tank when completely filled with liquid.

with fuel at 60° F, and then the temperature of the tank and the fuel is allowed to go up, something has to stretch, because the fuel cannot be compressed, and the tank is no longer large enough to contain all of the liquid.

Must Leave Vapor Space

This leads to the safety requirement that no closed container shall ever be completely filled with any liquid, the escape of which might produce a hazard. We must leave a vapor space above the liquid, sufficient in volume to provide for the expansion developed by any rise in temperature that might be reached, even under such severe conditions as surrounding the container with fire. This is the reason for the table of permissible "filling densities" which is included in NBFU Pamphlet 58 (Section B11) which determines the amount of fuel that may be placed in an L. P. gas tank of any size, and for the present approved formula for calculating the maximum liquid volume which can be placed in a container at any liquid temperature (Appendix D).

Unlike liquid, vapor can be compressed, so the gas contained in the expansion space, or "outage," provides a safety factor against rising temperature. Gas also tends to expand with increasing temperature, but because it is compressible it can still remain within the container, and raising the temperature merely raises the pressure.

The higher we carry the temperature of the gas, the greater the pressure becomes, and the higher the temperature is raised above the boiling point, the more rapid is the rate of pressure rise.

This chart shows why it is possible to use butane or a butane-propane mixture in warm weather and also

why it is necessary to use the product which we call commercial propane when the weather cools off so we have atmospheric temperatures below 40° F. Since we must have fuel at constant pressure in order for our burner equipment to be efficient, this variation in pressure also explains why we must use pressure regulators in the line between the supply tank and the burning equipment.

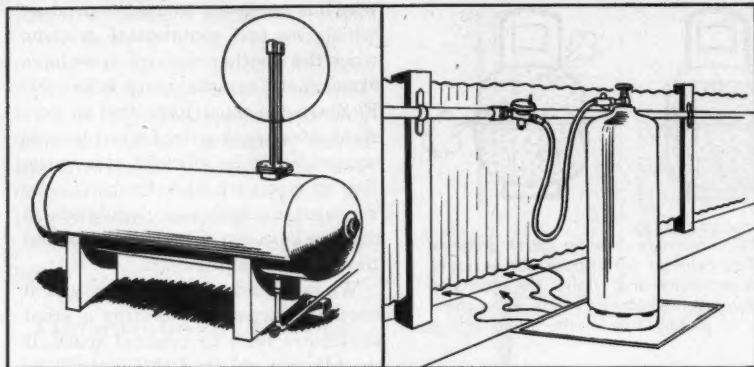
When liquid changes into gas it normally expands to occupy a great deal more than its original space. If we allow a gallon (.1335 cu. ft.) of liquid butane to vaporize under atmospheric pressure, and measure its volume at a temperature of 60° F, we find that it occupies 31.79 cu. ft., which is about 240 times as much space as it occupied in liquid form. Under similar conditions a gallon of propane expands to 36.45 cu. ft., which is an increase in volume of about 270 times. If the propane in gaseous form is then allowed to mix with air in combustible proportions, the gas-air mixture will occupy from 420 cu. ft. (upper limit) to 1560 cu. ft. (lower limit) of fuel in highly dangerous form. Even a small amount of escaped butane or propane could do a great deal of damage if mixed with a combustible proportion of air and then ignited. This calls for every possible precaution against the escape of dangerous amounts of L. P. gas.³

Butane in the vapor form is exactly twice as heavy as air, while propane is 1.5 times as heavy. When these

³The minimum ignition temperature of butane is 920°F, and that of propane is 960°. Exposure to open flame is not necessary to cause combustion or explosion. Contact of combustible mixtures with anything heated to those temperatures will cause ignition.

Sources of danger include pilot lights, matches, rubbish fires, heated metal (it reaches the danger point even before it begins to glow), defective ignition on automotive wiring systems, a wet ignition system, spark plugs so badly worn that sparks jump over the porcelain insulators, glowing carbon blown out of an exhaust pipe, the shattering of an electric light bulb, and cigars, cigarettes, or pipes.

These are mentioned because they are quite common hazards, and because some of them, such as the automotive ignition defects, are seldom recognized as dangerous. The entrance of a poorly maintained truck or car into the plant area is one of the most dangerous things that can happen. There are, of course, dozens of other possible sources of ignition which may create danger in case an inadequately diffused mixture ever drifts out of a controlled area.



Left—sketch of a tank with high vent stack, and, right, ventilation at the floor level in a bottling plant.

fuels are released they tend to settle to the ground. They are also likely to flow down slopes and to accumulate in pockets either in or under buildings or in low areas on the surface of the ground. Unless there is considerable movement of air, dispersion is slow. Escaped gas is not safe from the standpoint of fire or explosion until it has become diluted beyond the lower limit of inflammability.

In any higher concentration it is combustible either along the border area between the mass of gas and the outside air, or throughout the entire mixture. Thus we see that any extensive amount of escaped gas may travel a considerable distance from the point of escape before it becomes so completely dispersed that a fire or explosion could not occur.

A small amount of fuel is lost every time one of these filling connections is broken and this gas must be dispersed beyond the lower limit of inflammability in order to be safe.

The same consideration is back of the requirement that all storage containers in distributing plants, or at the point of utilization, shall be located outside of buildings, and why the larger storage tanks must be at a considerable distance from all buildings. It explains why cylinders must be placed outside of houses and away from openings through which escaping gas might flow into the basement or under the house and produce an explosion hazard when cylinders are disconnected. This is also the reason for the 100% safety shut-off, on pilot-equipped appliances.

Dispersion of gas down to the safe concentration requires either a considerable movement of the surround-

ing air, or movement of the gas through a considerable distance in the air. This makes it desirable to provide floor level ventilation or forced ventilation in cylinder filling rooms where it might be possible for escaped gas to create a hazard.

Since the necessary transfer operations in the plant always entail a loss of fuel when connections are broken, sound caution requires that the amount of fuel lost should be kept as low as possible. This is the reason why we have shut-off valves at the ends of all hoses and pipes and why a connection should never be broken without closing valves on both sides.

Minimizing the harmful effects of possible escape of fuel from closed containers is also one of the purposes of pressure relief valves which are installed on all tanks and cylinders, and which should be installed in plant piping and hoses between every pair of valves which might be closed. The liquid fuel lines are full of liquid—possibly quarts, maybe gallons. Remember that liquid is non-compressible, and any appreciable rise in temperature in a filled liquid line causes expansion of the liquid, which may burst the line unless there is a safety valve which can release enough liquid to prevent the development of damaging pressure within the line. The safety relief valve allows the accumulated fuel to escape gradually, so dispersion can take place, and it eliminates the hazard which would be present if the line should burst and

release a large amount of vapor quickly.

Another precaution which is included in storage container design is the use of excess flow check valves which close automatically and limit the amount of fuel that can escape in case a fuel pipe connected with the outlet should burst or become broken through an accident. This affords protection against the enormous hazard which would be created if the entire contents of the tank were allowed to escape as a result of such an accident. These excess flow check valves in the customer bulk storage tank also afford protection to his property in case the bulk truck driver should start away without disconnecting his hose.

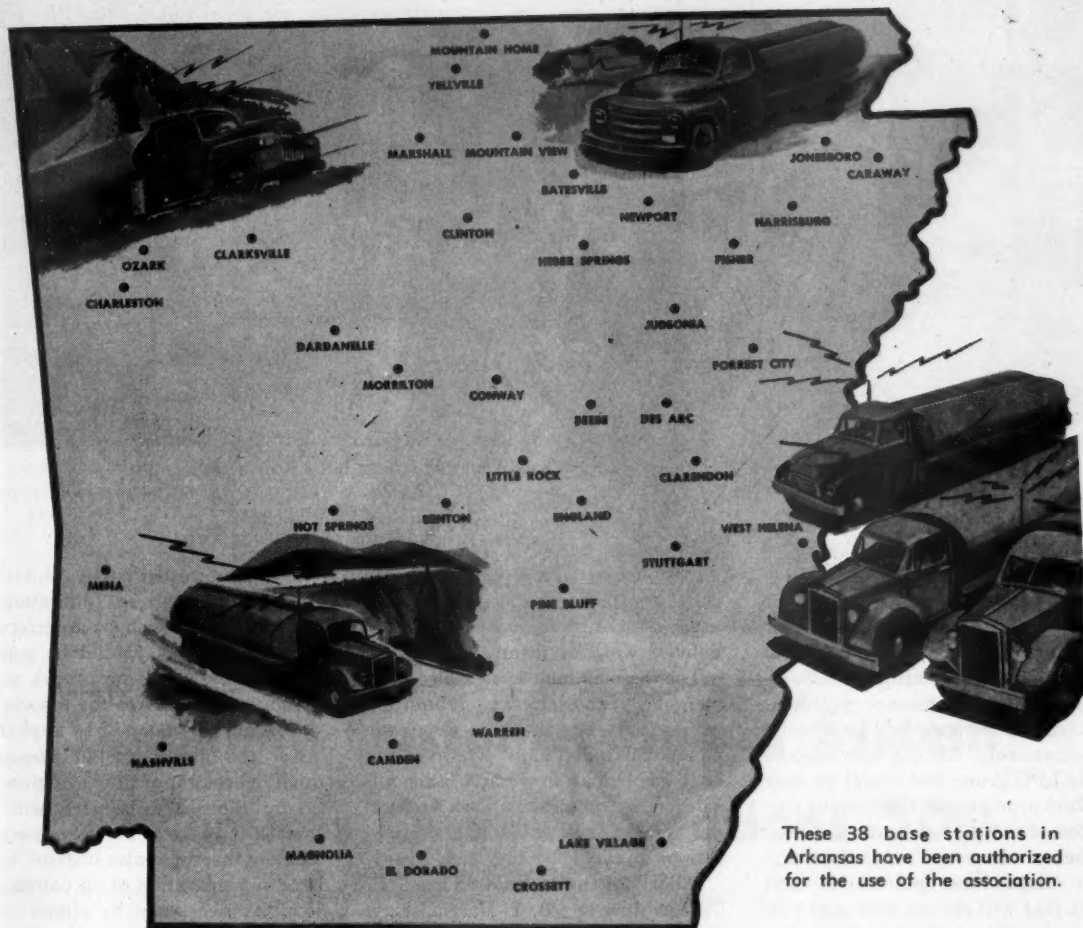
Butane and propane are odorless, so it would be very difficult to detect their presence unless something is added to the fuel to give it a distinctive odor, even when dispersed in the air to a degree considerably below the combustible range. These odorizing compounds must be of such character that they cannot be mistaken for any other odor. They must remain in uniform solution in liquid fuel, and vaporize with the fuel. They must become odorless upon burning, and they must not form deposits or do any other damage in the containers, pipes, regulators, valves or combustion equipment.

NBFU Pamphlet 58 requires that such odorants shall be used in all marketed L. P. gas. These odorants are now added at the refinery, thus making it possible to detect escaping gas by odor at all stages of its journey from the production source to the burner. Whenever this odor can be detected, it is time to search for a leak and make sure that there is none which could endanger any person or any property. It smells bad for the best reason in the world. It is in the fuel to help keep the operation safe.

The accepted regulations covering the equipment used in storing and handling L. P. gas, and the operating procedures, are as safe as can be devised with present knowledge. But there is still the human factor. Safe operation, in an L. P. gas plant, as elsewhere, is largely a matter of safe working habits while everything is under control, and good judgment in case of emergency. The basis of both habits and judgments is a sound and thorough knowledge of the nature of the product.

**Inflammable Limits of L. P. Gas in Air
Given as % of Gas in Air-Gas Mixtures**

	Propane	Butane
Lower limit	2.4%	1.8%
Upper limit	9.5%	8.4%



These 38 base stations in Arkansas have been authorized for the use of the association.

Arkansas Dealers Unite in Radio Communications Association

By K. R. McHenry

Communications and Microwave Equipment Sales
Radio Corporation of America

ARKANSAS LPG dealers have come up with a unique idea that may turn out to be the answer to the radio frequency shortage problem.

The plan was first initiated last summer at the time of the Arkansas LPG state meeting. Since separate frequencies were not available for all dealers, 38 of them agreed to band together under one frequency. The group applied to the FCC for permission to construct stations and receive authorization last fall. FCC ap-

proval of the project in September marked a communications milestone, as this is the first time such a group has formed a state communications hook-up to conserve the limited number of frequencies available for highway truck radio service.

The banding together of these dealers and the granting of their application may well serve as a model for other industry groups seeking maximum frequency utilization in a particular geographical area. There

are definite economic and operational advantages to be gained through such associate action that cannot be obtained by individuals.

Interference problems, for instance, can be more easily solved by a group of users in the same industry than they can be between different industry groups. The extensive radio use that will be made of their channel by the LPG dealers will almost certainly result in voluntary avoidance of that channel by other Arkansas



All-over view of B. T. Harris' "Zero" bulk plant and offices, Little Rock, Ark.

trucking interests. The other interests will be benefited also because they will have the remaining channels for their own use. It will be easier to eliminate potential sources of disturbance as any interference problems that arise in the state will be largely, if not entirely, limited to members of the LPG group and it will be easy to effect prompt and inexpensive correction of them by voluntary action.

The members can also adopt uniform dispatching procedures and codes that will reduce time spent on the air without affecting messages. And by combining their stations and mobile units in this way, it will be possible for the dealers to employ a radio specialist to assure the best possible equipment performance and simplify maintenance problems. Hence, they will have less "down time" and more time "on air."

The organization of these dealers is in the form of a nonprofit association with the sole purpose of furnishing radio communications service to its members. Known as the L. P. Gas Communications Assn., the group has been licensed to operate 38 base stations and 200 mobile units within the state. Locations of these stations are shown on the map. Base stations operate on 35.94 mc and the mobile

units on 35.94 and 35.98 mc. A radio system such as this can be readily used in time of emergency for civil defense work or in any emergency.

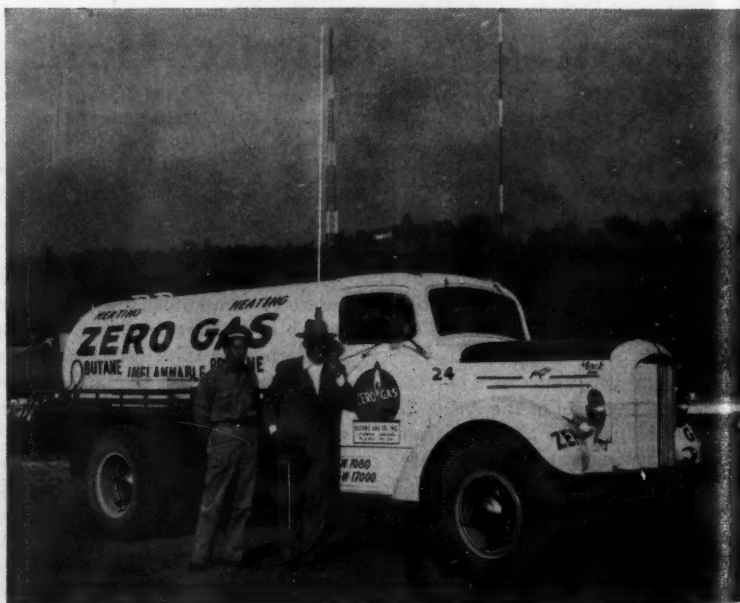
The association is flexible; new members can join by submitting proper data but they must be companies or individuals who operate L. P. gas trucks on a route basis outside of metropolitan areas. At present, there are three additional applications on file.

Officers of the association are J. S. Treece, director; B. T. Harris, secretary-treasurer, and J. P. McRae, chief engineer.

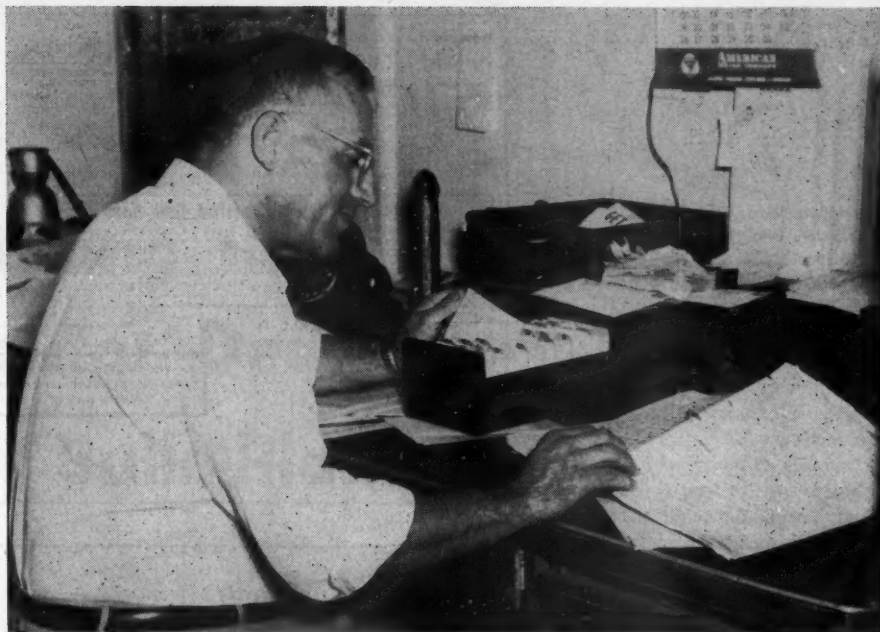
In setting up an association of this

type, all interested parties should be contacted in a group. Limitations of group service, such as interference between stations, should be pointed out and the need for proper police action on the part of the association to correct them should be explained. Also, the group should engage a qualified communications engineer to lay out the system properly with the least interference between stations. This engineer can also instruct members in preparation of all papers and exhibits necessary to obtain radio station licenses and operating licenses and in other details of communications procedure and operation.

B. T. Harris standing by one of his delivery tank trucks and talking to a route driver miles away.

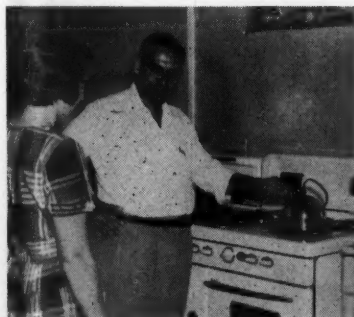


Owner Kenneth Remaly checks his LPG customer's meter records and makes notes and remarks for future reference. His simplified record system has reduced office operations by almost half.



Simplified Customer Billing System Reduces Office Operations 50%

By Ted Knight



Above, Mr. Remaly demonstrates the use of LPG to a customer and, below, he tests a meter before it is placed in a customer's home.

A record and customer billing system has been worked out by Remaly's Bottled Gas Service, Bethlehem, Pa., so efficiently and effectively, that it has reduced office operations by as much as 50%. This time-and-effort saving system simultaneously gives the firm every bit of information that it needs concerning the gas consumption by customers and payment of all bills.

In fact, the system is so simple that according to owner Kenneth Remaly, "It has been in use for many years and we have yet to find where improvements in it are necessary."

The complete system includes only two forms; the company hasn't found need for any others.

The core of this system is the customer meter record, the top part of which is shown at right. Each side of the sheet gives a complete record of the customer's gas use, billing, and payments for a six-month period. This makes it easy to check previous de-

liveries and keep up-to-date with current accounts. The sheets are kept together in a loose-leaf route book, one for each customer. Preliminary information is entered when the customer first starts his service. From then on, the company maintains a complete monthly report.

The second form is the billing form also shown at right. At the time the meter man takes a reading he fills out this form completely. The part giving the readings and the amount due (bottom left) is torn off and given to the customer. The top part provides space for all information needed by the office and the third section is a record of charges, which is filed, then destroyed when the bill is paid, after proper information has been entered on the main record sheet.

As a cross index and for other purposes, the firm has established a 3 x 5 in. file card system that contains the name of every customer. All infor-

These two forms, the billing form above and the customer meter record below, give Remaly all the information he needs to operate his business.

Present Reading _____ Lbs.	REMARKS _____	
Prev. Reading _____ Lbs.		
Gas Consumed _____ Lbs.	Lbs. in Cylinder No. _____	CYLINDERS PLACED IN SERVICE _____
Gross Bill _____ Net Bill _____	now in service. (Fill out before this month's reading)	Date _____
Arrears _____	Lbs. consumed this month _____	No. _____
Rec'd Pay _____ By _____	Balance of Lbs. remaining in Cylinder _____	Meter Read'g _____
		Lbs. in Cyl. when installed _____
		CYLINDERS REMOVED FROM SERVICE _____
		Date _____
		No. _____
		Meter Read'g _____
		Lbs. Left _____

REMALLY'S Bottled Gas Service					
333 BROADWAY, BETHLEHEM, PA.			Phone UNiversity 6-5792, if no answer call UN 8-3770		
PERIOD OF BILL	PRESNT READING	PREVIOUS READING	GAS USED	GROSS AMOUNT If paid after date shown below	NET AMOUNT If paid on or before date shown below
FROM _____	_____	_____	_____	\$ _____	\$ _____
TO _____	_____	_____	_____	\$ _____	\$ _____
LAST DAY TO PAY NET AMOUNT _____				To avoid discontinuance of service, all bills must be paid prior to the next meter reading.	
(Customer's Name and Address)					

REMALLY'S BOTTLED GAS SERVICE			
GROSS AMOUNT If paid after date shown below	NET AMOUNT If paid on or before date shown below	GROSS AMOUNT If paid after date shown below	NET AMOUNT If paid on or before date shown below
\$ _____	\$ _____	\$ _____	\$ _____
\$ _____	\$ _____	\$ _____	\$ _____
LAST DAY TO PAY NET AMOUNT _____			
Payable Two Days With February (Customer's Name and Address)			

Meter Record of Customer

NAME _____ ADDRESS _____ DATE INSTALLED _____

TYPE OF INSTALLATION _____ CYLINDER NOS. _____

APPLIANCES IN USE _____ METER READING AT INSTALLATION _____

DOMESTIC () COMMERCIAL () METER NO. _____ LBS. GAS IN CYL. WHEN INSTALLED _____

Present Reading _____
Previous Reading _____
Gas Consumed _____
Gross Bill _____ Net Bill _____
Arrears _____
Rec'd Pay _____ By _____

METER READING FROM

Gas in Cyl. No. _____
now in service. (Fill out before
this month's reading)
Gas Consumed this month _____
Balance of Gas remaining
in Cylinder _____

Cylinders Placed in Service

Date _____
No. _____
Meter Read'g _____
Gas in Cyl.
when installed _____

TO

Cylinders Removed from Service

Date _____
No. _____
Meter Read'g _____
Gas Left _____

Present Reading _____
Previous Reading _____
Gas Consumed _____
2. Gross Bill _____ Net Bill _____

METER READING FROM

Gas in Cyl. No. _____
now in service. (Fill out before
this month's reading)
Gas Consumed this month _____
Balance of Gas remaining
in Cylinder _____

Cylinders Placed in Service

Date _____
No. _____
Meter Read'g _____
Gas in Cyl.
when installed _____

TO

Cylinders Removed from Service

Date _____
No. _____
Meter Read'g _____
Gas Left _____

METER READING FROM

No. _____
(Fill out before
this month's reading)

Cylinders Placed in Service

Date _____
No. _____
Meter Read'g _____

TO

Cylinders Removed from Service

Date _____
No. _____
Meter Read'g _____

mation other than that given on the gas records is entered here for general use. If additional items have to be entered such as notes on appliance purchases, credit, etc., they are written on the card so that a complete record for each customer exists at all times.

Almost every installation made by Mr. Remaly is of the meter type. The firm and the customer have found them to be most suitable. Even where the gas usage by the customer would ordinarily warrant only a single tank hook-up, Mr. Remaly installs a double

one. He finds that a dual hook-up means fewer cylinder changes for the customer and fewer truck stops. Thus, the savings effected here as well as the convenience to the customer does pay off even when the 2-cylinder hook-up initially costs more than simply installing a single one at the home.

"We have weighed the difference between the expense of placing two cylinders where one cylinder would suffice," explains Mr. Remaly, "against the expense of fewer truck stops and cylinder changes, and have

found that for long-term customers, the double tank pays off. Then again, when the customer has a double tank hook-up, it is easier to sell them additional bottled gas appliances later on."

Although gas readings are taken monthly, all of Mr. Remaly's customers have from six to eight weeks' supply of gas at all times. So, if for some reason, there is a delay in changing gas cylinders, neither the company nor the customers have to worry about running out of gas and plenty of time remains to make change-overs.

Planning the Distributor-Dealer Bulk Plant

- Designing the Bottling Plant for Safety and Efficiency

By Carl Abell

THE first consideration in designing and building a bulk plant is to make everything safe. Of equal importance from the profit standpoint is to so lay out the plant that the work may be done efficiently and with the least possible loss of time. The most costly item in filling cylinders is labor, and every consideration should be given to eliminating lost motion in putting the cylinders through the plant and speeding up every possible operation within the limits of economical practice for a plant of the size determined upon.

The location of the cylinder filling house on the property bears importantly upon both safety and efficiency. Under the regulations of NBFU Pamphlet 58, the cylinder charging house may not be located within 25 ft. of the line of any adjoining property which may be built upon, and not closer than 10 ft. from bulk storage tanks. It may be built anywhere else on the property.

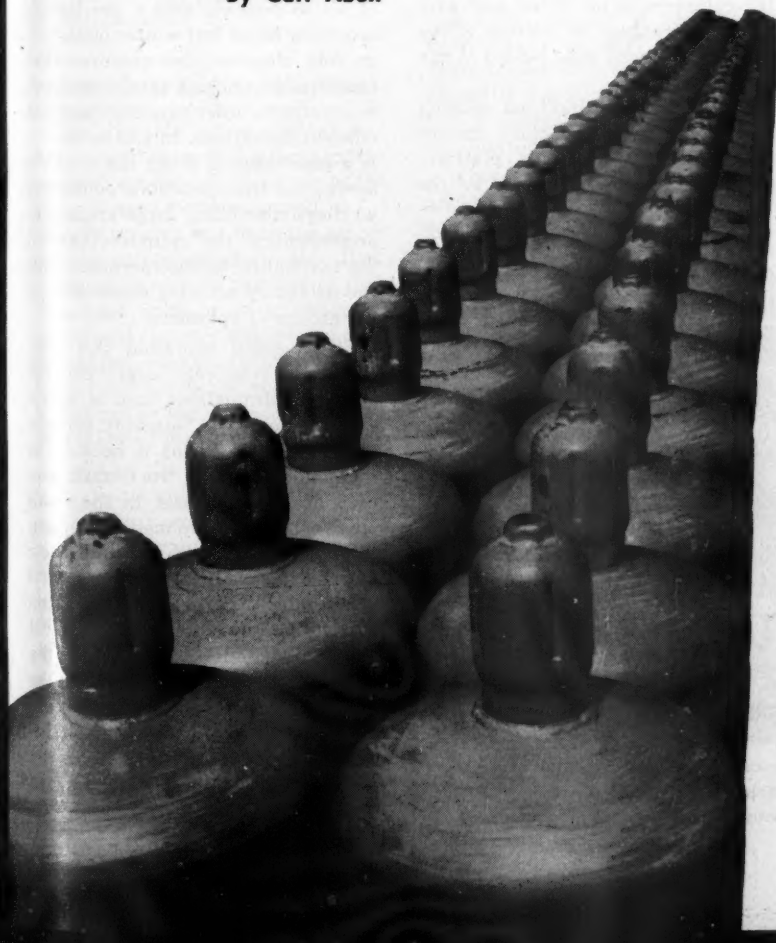
Air Circulation Imperative

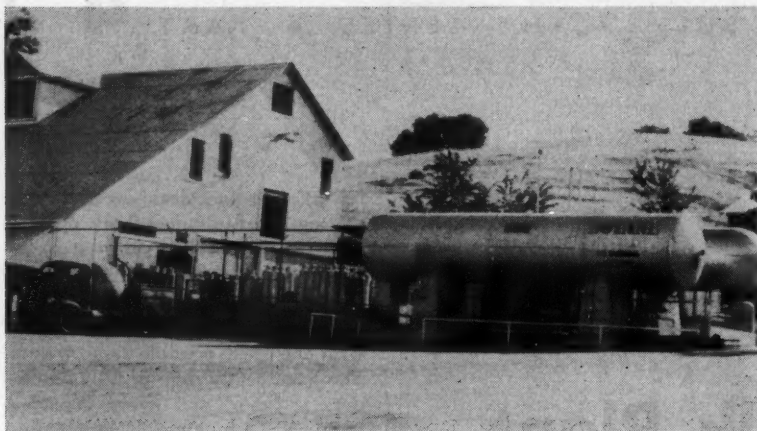
From the standpoint of safety, it is desirable to locate it where there will always be good air circulation, regardless of structures on the premises, or that may be built on adjoining property. It should also be located where neither the building, piping or the trucks which are loading or unloading will be in the way of traffic through the plant.

Since it is to be hoped that the plant will grow, consideration should be given to placing the building where it may be enlarged to meet possible future needs without violating the provisions of Pamphlet 58 and without infringing on driveways needed for other traffic through the property.

In any operation, whether it be large or small, most of the cylinders will be moved to and away from the plant by truck; so a great deal of needless labor will be saved by building the entire filling plant with floor level at truck-bed height.

There are a number of practical problems which should be considered





Terracing a sloping lot provides economical means of providing adequate cylinder storage space, and foundation for bottling plant (located behind tanks).

in planning the size of the building and the necessary loading and unloading docks. The portion of the dock which is used for unloading empty cylinders should be large enough to store at least one day's incoming cylinders. If the daily throughput is not likely to be uniform, consideration should be given to the amount of space necessary to carry the traffic of the peak day.

Approximately $1\frac{1}{2}$ sq. ft. will be required to store each 100-lb. cylinder; 150 sq. ft. will be required for each 100 cylinders expected in the day's throughput, so with the necessary working space above the re-

quirements for storage, good practice indicates an allowance of 200 sq. ft. per 100 cylinders.

If more than one truck is expected to be at the dock at one time, at least 10 ft. of platform front per truck should be provided. The loading dock for filled cylinders should also be designed with the same relationship per 100 cylinders to be stored and with the same frontage in relation to the number of trucks to be loaded at one time.

If the plant is built on sloping ground, a very satisfactory answer to the problem of space, platform area, and foundations may be ob-

tained by constructing a terrace at truck-bed height. This is particularly advantageous in operations in which there is intermittent demand for the filling of large numbers of cylinders, requiring additional storage space for empty and filled cylinders. If the terrace can be extended to accommodate this extra traffic, the most economical condition for handling the cylinders is created, as no lifting is required.

Could Use Forklift Truck

Where this intermittent peak condition exists in plants built on level ground, the operator should investigate the comparative advantages of building an enlarged platform, or paving an area in the yard for storage of the extra cylinders, and handling them between the bottling plant and the storage space by means of a forklift truck.

Whether the filling is done in a closed room or in an area reserved for operations on an open dock will depend upon climatic conditions. It is desirable to have as much circulation of air as possible where the bottles are being filled, but winter operation in cold climates also requires that comfortable working conditions shall be created in order to permit fast and efficient operations. In either case, it is a good plan to make the area reserved for the operations connected with cylinder filling large enough to accommodate the cylinders needed for two hours' filling operation, plus the necessary working space around the groups of cylinders.

For a small operation this area should be relatively larger per 100 cylinders throughput than is necessary in the larger "quantity production" operations. This is because in the small plant the work must proceed on a batch basis. In the small operation one or two men engaged in filling cylinders will expedite their work by cleaning, inspecting and performing the necessary maintenance operations on a good sized batch of cylinders, then filling the batch and repeating the cycle. As the operation becomes larger and more men are engaged in the work, it becomes possible to come closer to the factory-type, continuous flow work procedure.



For temporary peak-loads like this, paved yard space supplements the cylinder house platform.

With the floor plan determined, the foundations and floors may be laid. It is customary practice to build the foundations up to the floor level, and completely fill the area under the floor so there will be no place for the accumulation of gas which might constitute an explosion hazard. This is not done in all cases, but if the understructure is to be open, it should be open on all sides to allow uninterrupted circulation of air beneath the building. The open type of construction should be considered only in areas where there is plenty of open space around the building, and where the climatic conditions are such that the wind is almost constant. In addition, the open foundation type of structure should have an absolutely tight floor, and positive ventilation should be provided around the cylinder filling area.

If the understructure is of the solid-fill type, with concrete or masonry for the outer walls, a sheathing of heavy wooden planks should be provided along the front of the loading docks to prevent sparking when trucks back into the dock, and to protect the masonry and the truck from impact damage.

Concrete Is Popular Flooring

The selection of material for flooring will depend to a large extent on local conditions. Concrete is the material most frequently used, and it is quite satisfactory from the standpoint of safety and durability. It is, however, harder on the feet of men who must work on it continuously, and in cold climates it presents about the coldest working surface that can be provided, except metal, which should not be used on account of the possibility of producing sparks.

Some of the best working floors from the standpoint of comfort, safety, durability, and warmth in winter, are made from wooden blocks laid with the grain vertical. Wooden flooring laid flat is not desirable, because of its low resistance to wear and the possibility of easy ignition of spots which become splintered.

The building should be of fireproof construction, and the material selected should be determined by local conditions. Masonry is generally considered best for cold climates, while



A small, efficient, fireproof plant which includes most of the features recommended in this article.

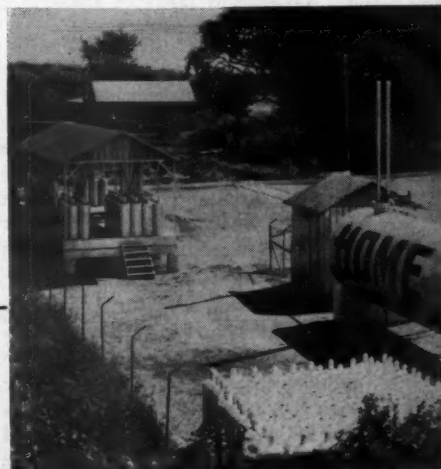
in moderate climates a variety of metal, Transite and various heavy plaster boards are quite serviceable. The design of the walls of anything other than masonry materials should include steel framing, with substantial bumper rails at an appropriate height to protect the walls against damage in case cylinders are knocked against them. The roof should likewise be of fireproof material.

A small amount of fuel escapes every time a cylinder filling line is disconnected. This only constitutes a hazard if it is allowed to accumulate into a dangerous quantity of explosive mixture.

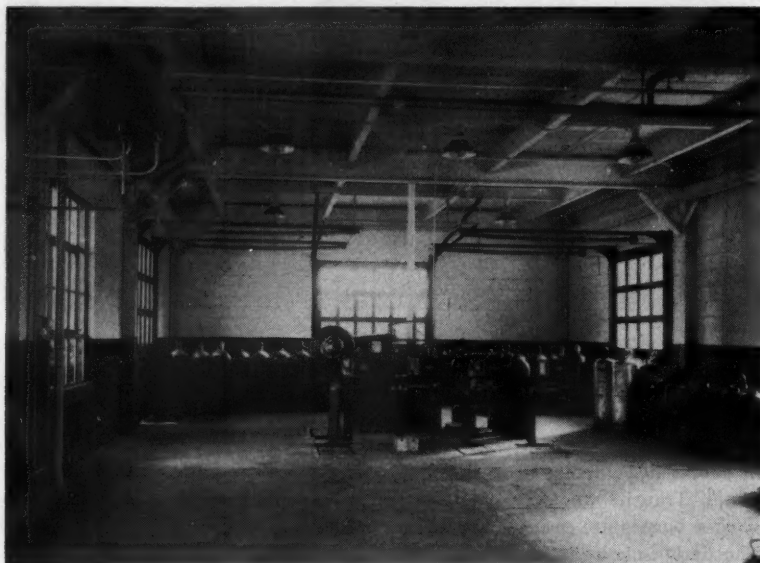
Where climatic conditions require enclosure of the filling room for the comfort of the men, it is necessary to provide thorough ventilation, particularly at the floor level, to remove any accumulation of gas which may escape when breaking the connections at the bottling manifold. This ventilation is sometimes provided by leaving gaps under the walls at floor level. Since this is likely to lead to a high degree of personal discomfort, it is preferable to provide positive ventilation at floor level by means of a ventilating fan discharging through the roof. This fan and any other power-driven apparatus which could pos-

sibly be exposed to the fumes of escaping gas should be driven by explosion-proof motors.

A few operators have even gone so far as to construct the floor around the scales of boards fastened on edge, with the gaps between the boards terminating in the intake duct for the exhaust fan. The escaping fuel goes down between the boards and is drawn out very quickly, thus creating the safest possible condition. Where it is necessary to keep the bottling house closed over night or during periods of non-use in order to retain heat and produce more comfortable working conditions, it is advisable to start the exhaust fan and ventilate the building thoroughly before re-entering. This may be done by installing the switch for the ventilat-



Where climatic conditions permit, the open air bottling shed provides perfect ventilation. Open foundation allows uninterrupted dissipation of escaped vapors.



Overhead heaters provide working comfort without taking up floor space needed for operation. Lighting and electrical installation conform to safe practices.

ing blower outside the entrance door.

In some climates it is necessary to heat the building for the comfort of the men. It is not permissible to use direct fired heating apparatus inside the cylinder filling room, under the provisions of Pamphlet 58 (2.14d). A boiler room may be constructed as a part of the same building, but if this is done, it must be completely walled off from the cylinder filling room. A good many designers believe that it is better practice to house the boiler in a separate small building, completely removed from the cylinder filling installation.

Overhead Heaters Have Advantages

Overhead radiators with blowers should have serious consideration for heating the cylinder filling department, as they keep the floor space clear for productive use, and provide complete circulation of heat without regard to obstructions. Blowers for these heaters should also be driven by explosion proof motors.

Good lighting is required for efficient operation and is particularly important in reading the weights on the cylinder charging scales. The electric wiring should be enclosed in conduits and all electrical equipment should conform with the types approved for

use in "Class 1, Group D, Hazardous Locations," as specified by the National Electrical Code. Electric switches should be of the explosion proof type.

Considerable time and expense will be saved in the future operation of the plant if it is laid out so the movement of the cylinders through the various necessary steps will be continuous, without back-tracking and without crossing the route of movement at any point. This is merely an adaptation of the work flow plan which has proved to be most economical in manufacturing operations. The customary step-by-step procedure is as follows:

Empty cylinders are unloaded at inbound dock.

Cylinders are de-iced and dried if necessary.

Cylinders are cleaned, inspected and prepared for painting by scraping, wire brushing, sanding or other necessary procedure.

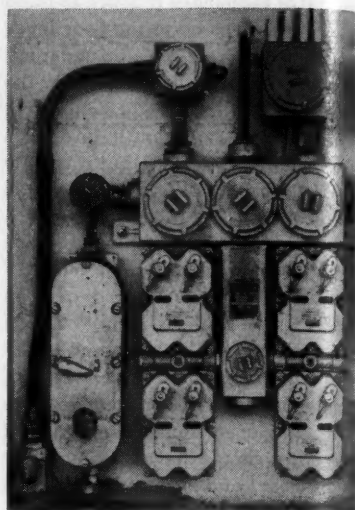
Cylinders requiring maintenance work on valves are diverted to maintenance department.

Cylinders are spray-painted if needed.

Cylinders are filled.

Cylinders are moved to out-bound shipping dock.

During winter operation and cold climates, empty cylinders frequently come in with the lower rings packed



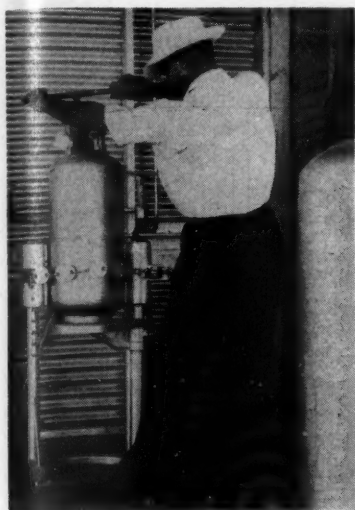
Explosion proof switch panel, conforming to Class I Group D requirements for installation in hazardous locations. This operates all pumps, compressors, blowers, and lighting circuits in a large bottling plant.

with ice. In other seasons and other areas, it is quite common to pick up mud in the bottom of the cylinders. Unless the ice and mud are cleaned out, corrosion may become very bad around the joint between the ring and the cylinder. One of the most satisfactory arrangements for this clean-out operation is a slat floor made of hardwood planks or scantlings set on edge over a shallow vat which is fitted with steam coils and equipped with a drain that conveys the melted ice and washing water to a point outside the foundations of the building. The steam coils melt the ice rapidly and expedite the drying of the cylinders. This cleaning space should be large enough to accommodate the cylinders required for approximately an hour's operation.

Keep Traffic Lane Clear

Maintenance of cylinder valves should take place at a point outside the line of travel of the cylinders going through the successive steps outlined above. In many of the larger plants, this work is done in a separate small room which is accessible through a door immediately adjoining the point where the cylinders leave the line.

Many of the best operators repaint



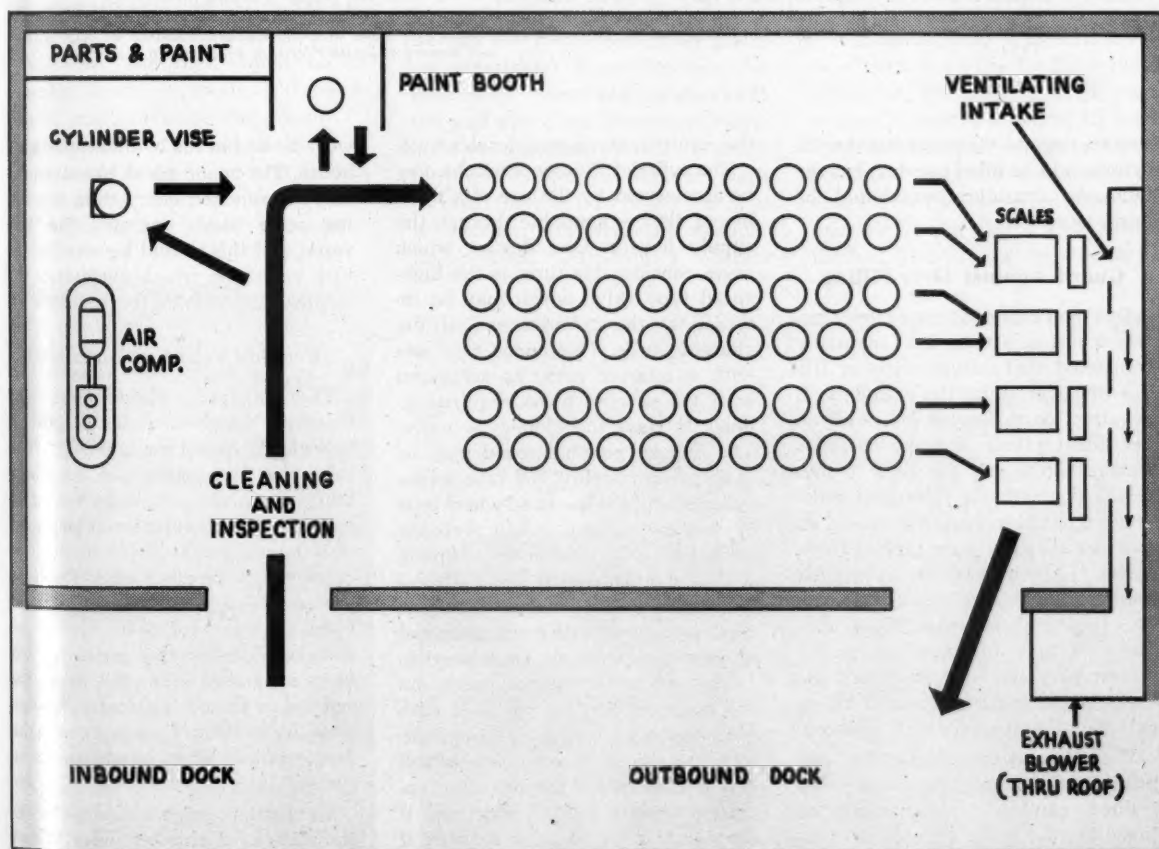
A cylinder vise is almost indispensable in maintaining cylinder valves. (Note fire extinguisher hanging on wall).

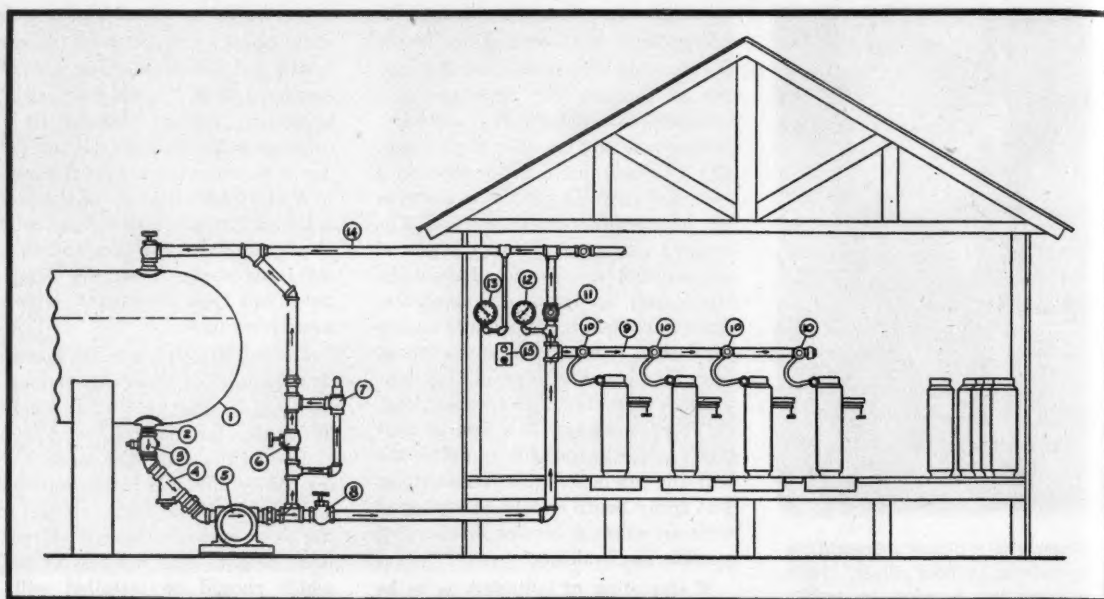
cylinders every time they come in for filling. With a modern spray booth, the painting time is reduced to a matter of seconds per cylinder. Two methods of spinning the cylinders during painting are in common use: (1) The cylinder is suspended on a swiveled grip and (2) the cylinder is placed upright on a turntable. The latter method is generally regarded as fastest. Many operators have made their own spray booth turntables from a front hub and spindle assembly taken from a wrecked automobile. This provides a practically frictionless turntable. The operator very quickly learns just how fast to start the cylinder spinning to complete the painting job before the motion stops. The spray booth should be equipped with an exhaust blower discharging outside the building.

If stenciling of cylinders is to be

done, the fastest procedure is to line them up in a row between the spray booth and the scales. The stencil is equipped with a metal bail designed to fit over the cylinder cap threads or on the upper flange (if the cylinder is so equipped) with the stencil in contact with the side of the bottle. A small size professional spray gun is adequate for this job and is considerably faster than the pressure paint can type of sprayer, which is sometimes used.

The cylinder filling scales and manifold should be located against a wall adjacent to the out-bound shipping dock, with the manifold securely anchored to the wall. The work of filling the cylinders is faster and easier on the men if the scales are set into the floor with the scale platform at floor height. The number of scales which should be installed will, of





A piping layout which gives excellent results in a small bottling plant. The pump (5) is located close to the source of the fuel. The return line to the tank makes it possible to maintain the proper pressure differential by adjusting valve (11). The line may be cleared of any vapor when starting pump, by the complete opening of either valve (6) or valve (11). Pump may be started and stopped by means of explosion-proof switch at (15).
—Courtesy of Smith Precision Products Co.

course, depend upon the number of cylinders to be filled per day, but the following consideration should be borne in mind:

Guard Against Over-Filling

One man cannot operate more than two scales at a time with manually controlled fuel valves without frequently over-filling the cylinders. It requires more time to bleed off an over-filled cylinder to make it safe for transportation and use than it does to fill the cylinder. With the automatic type cylinder filling valves, an average man can take care of three scales at a time and an exceptional man may be able to keep up with the operation of four scales. Thus, with three or four automatic scales the output per man-hour is greatly increased and the labor cost of filling cylinders is correspondingly reduced.

With the automatic scale, the only possibility of over-filling the cylinder is due to carelessness of the operator in setting the scale. Unless the operation is very small, the expense of installing the automatic shut-off valves will pay off very quickly as

the result of saving considerable time.

The cylinder filling operations may be accelerated by the use of a number of devices available through the supply houses. One device, which saves considerable time, is the high-speed type valve which may be installed at the cylinder end of the charging tube. This opens or closes with a quarter turn, as compared with the several turns required to open or close the globe-type valve. The highest possible speed may be obtained in coupling the tube to the cylinder valve if the hand-wheel type of coupling is used. It will probably be necessary to tighten the coupling with a wrench, but it saves a good deal of time to be able to spin the threads together with a wheel instead of depending entirely on a wrench.

The automatic control valves on the manifold may be operated with compressed air or vapor. Air-operated valves require a compressor which may not be needed for any other operation around a small plant and it represents a considerable expense if used exclusively for operating the control valves. LPG vapor operates the valves just as well, and it can al-

ways be had in the cylinder charging house. The vapor which operates the valve is released every time the rising scale beam operates the trip valve, and this should be manifolded to a vent pipe which evacuates the escaped fuel outside the building.

Provide Vent For Bleeding

The standard cylinder charging manifold design includes a shut-off valve at the outlet for each tube. The tubes will last longer and the possibility of rupture caused by rising atmospheric temperature will be avoided if the fuel is released from the tube at the end of the day's work. It is suggested that a vent be provided for bleeding these tubes to outside atmosphere. After the pressure has been exhausted from the tube, the end valve should be closed to minimize the amount of air going into the first cylinder when operation is resumed.

Standard practice includes the installation of a shut-off valve where the fuel supply line is joined to the manifold. Some of the best designers also include a shut-off valve in the

fuel line several feet outside the cylinder house. This is a safety precaution to permit shutting off the fuel in case of emergency. Both of these valves should be closed at the end of a day's operation.

Protect Manifold With Filter

The manifold should be protected by a filter of adequate size, which should be drained and serviced regularly. Maintenance of cylinders consists principally of replacing valves which have badly worn POL threads, or which require attention for failure at other points. Since it may be necessary occasionally to bleed a considerable amount of fuel out of a cylinder to permit the removal of the valve, it is advisable to provide a bleed-off line to conduct this fuel out of the building in safety. The ideal means of disposing of this fuel is to connect the bleed-off line into the intake line of a compressor, if one is available. The fuel should be released slowly so vapor, and not liquid, will reach the compressor.

If this method is used, the bleed-off line should be equipped with a check valve at the compressor and a shut-off valve at the cylinder connection.

The only other way to be sure that the fuel is removed from the cylinder is to vent it to the air.

A good cylinder vise will save a great deal of time and is a necessity in any large operation. Wrenches and other tools needed for cylinder maintenance should be hung on a board within easy reach of the vise. Painting the outline of each tool where it belongs on the board will standardize the working habits and encourage the replacement of the tool in the proper place each time it is used. The parts bin, in which the necessary maintenance units and parts may be stored, should also be located where the maintenance man can pick out any item needed without walking around the shop.

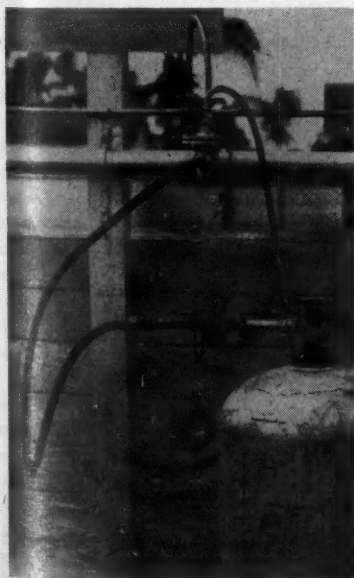
The cylinder maintenance facilities should be located conveniently at one side of the "production line," between the spot where the cylinders are cleaned and inspected and the painting department. In small plants, this may be an unenclosed place next to the wall where the cylinders accumulated for maintenance will not interfere with the direct flow of work through the plant. In larger plants, it is customary to have the cylinder maintenance facilities in a separate

small room, located conveniently to this part of the production line. This is also a good place to locate an air compressor, and if this unit is available, an outlet and air hose should be provided to facilitate the shop work.

Either a pump or compressor can be used in charging operations. If a compressor will be continuously available when needed for cylinder charging, it provides a very smooth and fast method of filling the cylinders. Its pressure is steady and without pulsations, which makes for fast filling. There is a manifold equipped with a trip valve, which makes it possible to evacuate the empty cylinders before filling that may be used in connection with a compressor. Under some conditions this shortens the filling time and speeds up the operation.

Correct Size Pump Important

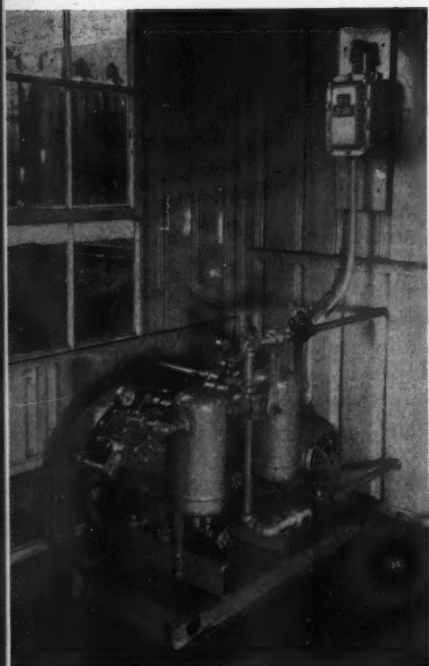
If a liquid pump is used, it should be of the correct size for the cylinder filling job. The use of a larger pump such as is most economical for transfer of fuel between storage and transportation tanks is not advisable, because with the over-sized pump it is necessary to by-pass a great deal of the fuel. This runs up the electric bill



Automatic control valve, hand wheel type coupler, and quick-acting terminal valve, speed up the bottling process.



Fork-lift truck elevates a dozen filled cylinders from the yard level to the truck bed, in handling foreign shipment too large to store on platform.



unnecessarily. In filling cylinders with a pump, it is axiomatic that the steadier the flow from the pump, the faster the filling will take place at a given pressure.

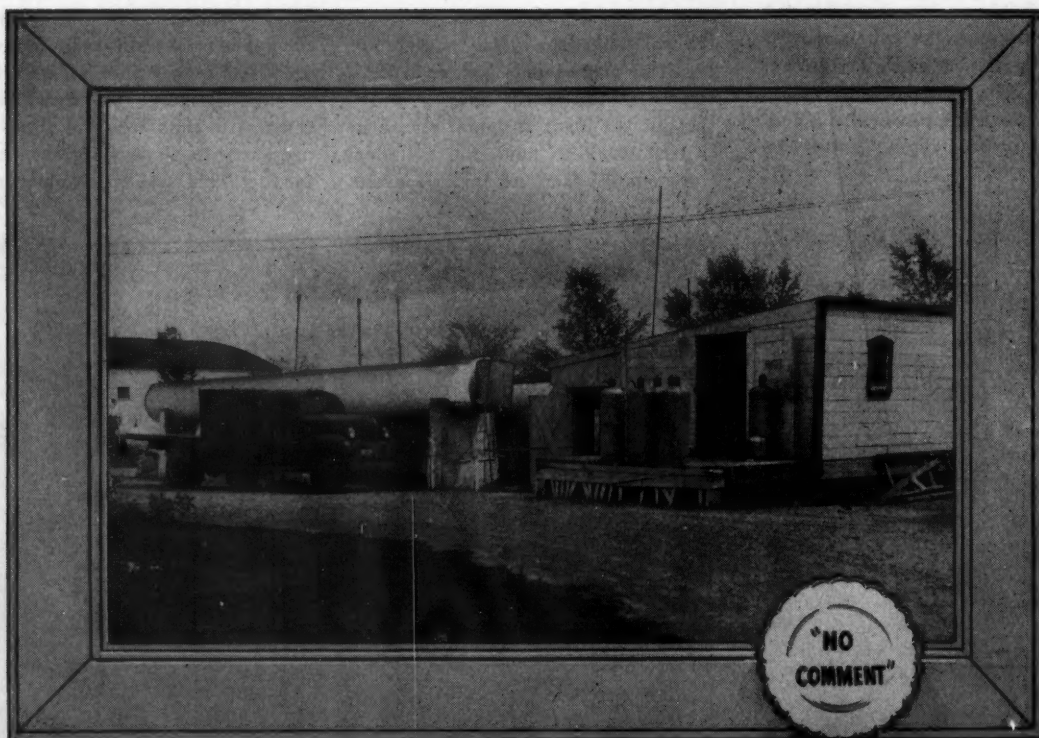
The use of a liquid pump for intermittent operations such as bottle filling necessitates a by-pass to protect the line and bottling system from excessive pressures. The by-pass line should return the excess fuel to the storage tank instead of being connected back to the pump inlet. The latter practice presents the hazard of overheating the fuel, which may cause the pump to vapor-lock, and this can produce severe damage due to overheating and pump wear. Any heat carried back to the storage tank

A good compressor installation, in a separate house adjacent to bottling plant. Note open foundation under cylinder platform, visible through window.

by the by-passed fuel increases the pressure in the tank and provides a more certain flow of fuel to the pump.

Throughout this discussion we have stressed the parallel importance of safety and efficiency. No operator can afford to overlook either aspect. A plant may be safe without being efficient, but no plant can be efficient unless it is also safe. Efficiency insures the lowest cost and highest profit for the bottling operation, while safety makes it possible for this profit to be retained.

While not specifically required in NBFU Pamphlet 58, it is considered good practice to keep portable fire extinguishers, of a type suitable for gas fires, in conveniently accessible locations both inside and outside the bottling house. The dry chemical or carbon dioxide types specified for use on trucks transporting LPG (NBFU Pamphlet 58, Section 3.12) are the extinguishers most frequently provided.



What Clothes Dryers Offer

- In New Sales
- In New Volume

OF all the appliances available for L.P. gas use, the automatic clothes dryer is the newest. The market and sales possibilities are huge, because 73.5% of the nation's families have washers, but only 2.2% have a dryer.

With the desire for dryers rapidly gaining a firm hold, the present rate of sales progress indicates that the dryer will soon take its place well up with appliances most in demand. Considering this untapped market, the potential in the dryer field is enormous. This definitely indicates a great, new sales field for you, as an L.P. gas dealer.

You may question, "How many housewives who reside beyond the gas mains want and will buy a clothes dryer? Isn't the dryer a city appliance, less in demand in rural areas where there is more outdoor space for clothes-drying?" Answering these questions, every housewife residing beyond the city gas mains can be considered a potential buyer.

In suburban and rural areas, there is a tendency toward ranch-style homes, with no spot for unsightly clothes lines. Suburban and farm housewives have busy, productive schedules, with time planned for community and recreational interests—time made possible by homes equipped with efficient, work-saving appliances. Because the dryer can be the biggest time-saver, independent of weather or time of day or night, the housewife realizes that this appliance can save her most of her wash-day time, work and inconvenience.

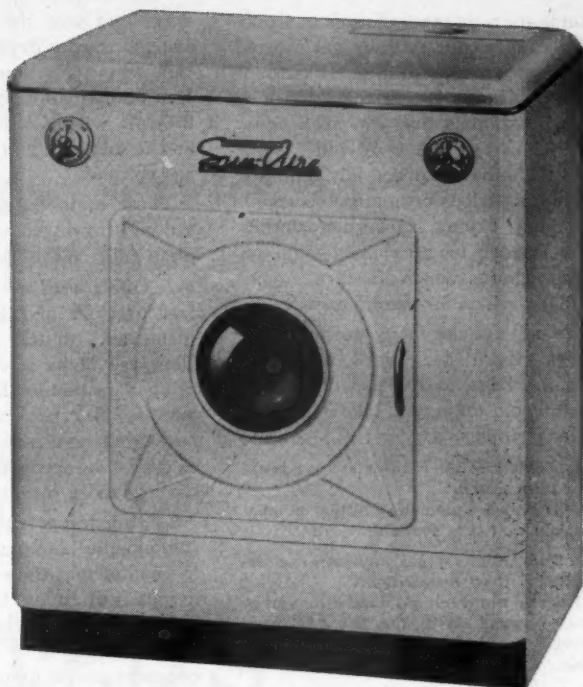
Today, more than ever before, LPG customers are financially able to purchase additional appliances. At the present time, in 20 homes out of 100, there are two wage earners instead of one. With the woman of the house working, she adds 30 billion

dollars a year to the national income—income which she will spend largely for improvements and conveniences in her home to permit her freedom of time to work and play. The implications for clothes dryers are obvious.

Another case in point for the automatic clothes dryer is that domestic help is becoming increasingly rare, too high-priced for the average household.

With the continuing home-building boom, more people are moving from cities into new suburban and rural homes, increasing the sales horizon for the L.P. gas dealer. You, as one of these, can share in this ap-

By Everad Stiglitz
The Stiglitz Corp., Louisville, Ky.



pliance market and build up your total volume.

You must know and be enthusiastic about the sales volume and profit potentials of the clothes dryer; and you must acquaint your customers with this product about which they now know too little. Clothes dryers are new in the appliance field. Many women bought dryers for convenience, but find, without exception, that a dryer proves quickly to be the most indispensable appliance in household operation. It takes but a short demonstration to make your customer want one.

The greatest of all women's house-keeping problems is clothes drying. Here are the main factors which give the automatic clothes dryer its strong sales appeal:

1. The dryer saves most of wash-day work; gives convenience; offers complete freedom from clothesline worries. Does away with drudgery of stretching, bending, climbing stairs with heavy baskets of wet clothes, and hanging them on clotheslines.
2. Controlled drying permits clothes drying to be performed on an exact schedule any day of the week, morning or night, completely independent of weather or social activities. The clothes are fluffy, smell sweet, and the colors last longer.
3. The clothes run no risk of con-

tamination by other clothes in a public laundry, nor do they get twisted on your own clothesline by outdoor winds. They are not soiled by dust, dirt or animals, and you need never fear showers or snow or cold.

4. Eliminates need for domestic help for periods normally needed for hanging, drying, sprinkling clothes. Eases work load, releases maid for other chores which, in turn, means dollar savings for the housewife.

In spite of the many dozen advantages, there are three objections women have to the gas dryer. By countering them, you can close your sales of the gas dryer.

1. Women dislike lighting any gas burner with a match.

This makes automatic ignition a must. Explain that it is available.

2. They think of gas appliances as requiring a fixed installation.

They do not think gas appliances can be "rolled-away". With the new AGA-approved flexible tubing this is easily possible.

3. They believe a gas dryer must have a flue or vent, or clothes will have a gas odor.

This objection is eliminated by actual demonstration. Let the customer smell the freshness of the finished clothes, free from any odors.

You have read about sales potentials. Now, what about sales? Promotion-wise, there are a number of

ways that you, the L.P. gas dealer, can sell the gas dryer and popularize this service in new neighborhoods. You'll keep your biggest competitor, 220-volt wiring, out of the picture, and in addition you step up existing gas volume.

These methods can be used individually or in combination to complete your sale:

1. Offer, with every dryer sold, a free cylinder of L.P. gas, with free installation in the prospect's home. This will make it easier for you to sell gas in the new home as an introductory offer. Give the old gas customer the same offer of a free cylinder of gas at no extra charge; this puts her in a more receptive mind to buy.

2. Offer the prospect a free 10-day, in-the-home demonstration, and at the end of that time send a salesman to pick it up unless the prospect calls previously to purchase it. And this way, the gas dryer sells itself as a necessity, not a luxury.

3. Take a number of gas dryers out in your truck. Spot your neighborhoods by offering a free trial period of 10 days. You'll find your sales easier!

4. If you should find it hard occasionally, to get the dryers into the home, offer them as an alternative to a free cylinder of gas, \$10 in cash for

a 10-day trial. If the dryer is purchased, the customer has a choice of keeping the gas cylinder or taking a \$10 reduction toward the purchase price of the dryer. If they decide not to buy, the \$10 is paid for the privilege of putting the dryer in the home.

5. Invite the housewife to your store. Have a dryer connected for live demonstration. Get a home service representative to help run the show, so that you receive the full benefit of her knowledge of the washer-dryer story. By demonstration in groups, you get immediate sales and a large number of prospects.

6. Have a pickup service for your hot prospects on Monday, or any other day when there has been a long seige of bad weather. Take them with their wet wash to your store for a proof-convincing demonstration.

7. When you make a sale, ask the customer for prospect recommendations. For each prospect you close because of the lead, you give the original customer credit on her gas bill.

8. Systematically, use telephone canvassers to invite the customers to the store for demonstrations or offer the free use of the dryer in the home. For those that come into the store and won't buy, or won't come to the store, have the salesman make personal calls the following day. You should close several sales in this group.

9. Show the prospect how easy it is to own a gas clothes dryer. The dealer who uses the meter system, or the areas that are L.P. gas "tank-towns," can offer the prospect an easy monthly payment plan that is added to the gas bill. The dealer who sells service on a delivery-pay basis can make full use of credit extension by working with his bank.

However, all L.P. dealers in making the sale, and setting up the payment plan, show the customer how the gas clothes dryer can help pay for itself by reducing the needs for outside laundry service; cutting down the time needed for domestic help; and resulting in the clothing lasting longer, looking brighter, feeling fluffier. Also, it gives the woman of the house more time for family and social activities, because the gas clothes dryer is a wife-saver! Yes, by full knowledge and hard promotion, you can sell gas clothes dryers, increase your gas volume and increase your customers in a single action.

Mrs. E. C. Willey is making practical application of her "Sun-Aire" dryer in her home on wash day.



Announcing
**a helpful new service for
bulk operators:**



UNITED'S
Forecaster Service
to help you plan ahead, and get ahead, in '53

WHAT IT IS:

United's "Forecaster Service" is a method we've developed to help you *accurately predict* your needs and your business growth in 1953. We work it out with you *right in your own office*—no delays, no elaborate reports or special systems required.

WHAT IT DOES:

"Forecaster Service" gives you a picture in advance of your probable requirements throughout the coming year. You'll get a separate chart showing your expectable volume in each class of supplies: bulk gas, storage systems, hoods and stands, meters, and so on. These growth-trend predictions will be of real value to you in planning ahead, in contract purchasing, and in cost control.

HOW YOU GET IT:

If you operate a bulk plant business, and have kept records of your receipts of gas and equipment during the past three years or more, "Forecaster Service" can go to work for you. Just ask your UNITED service representative about it next time he calls. Or write us to send a representative to see you: no obligation.

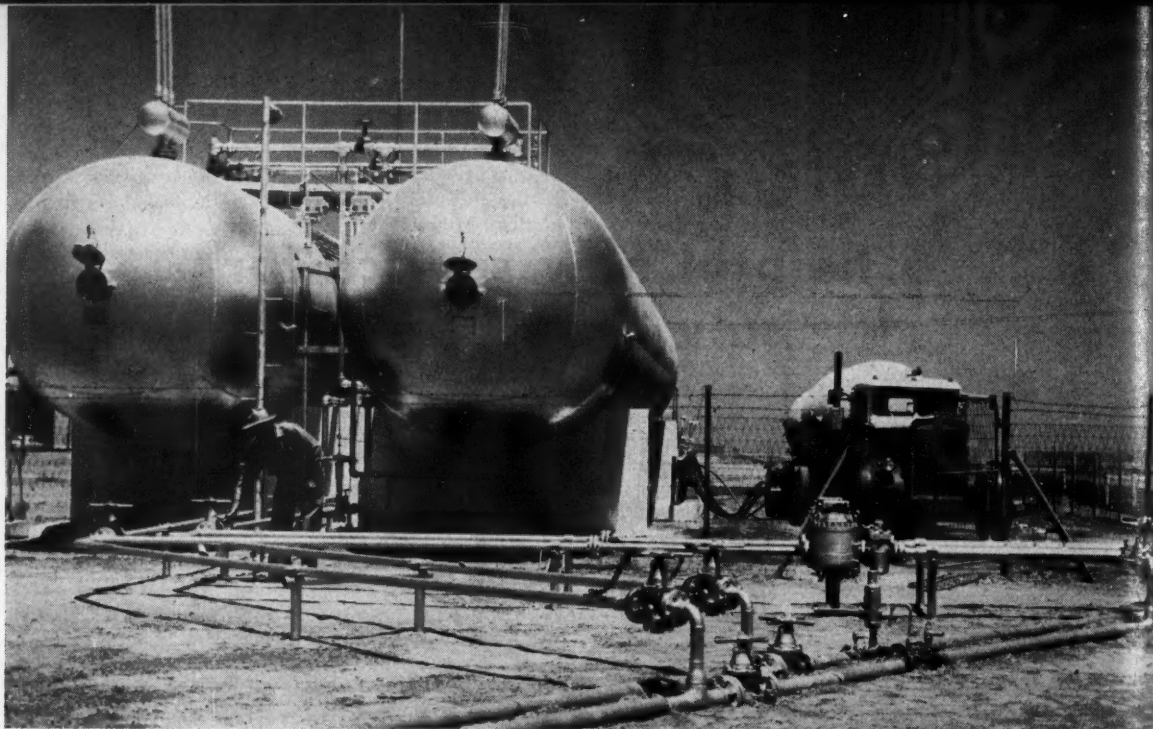
• IT PAYS 10 WAYS TO DO BUSINESS WITH UNITED!

UNITED PETROLEUM GAS CO.

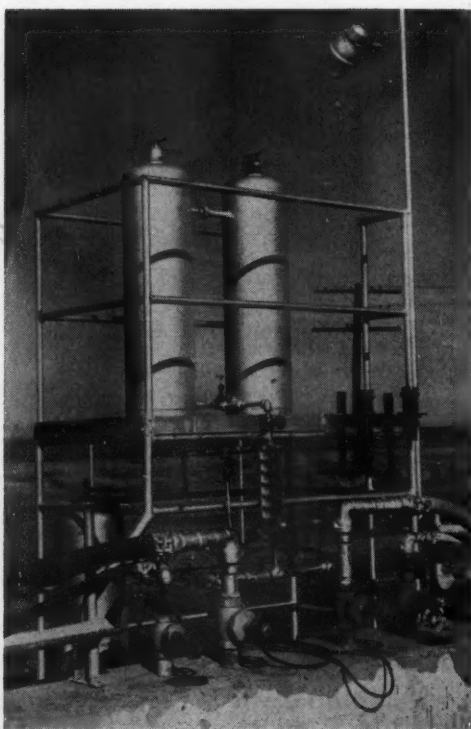
806 Andrus Building • Minneapolis, Minnesota

SALES REPRESENTATIVES IN:

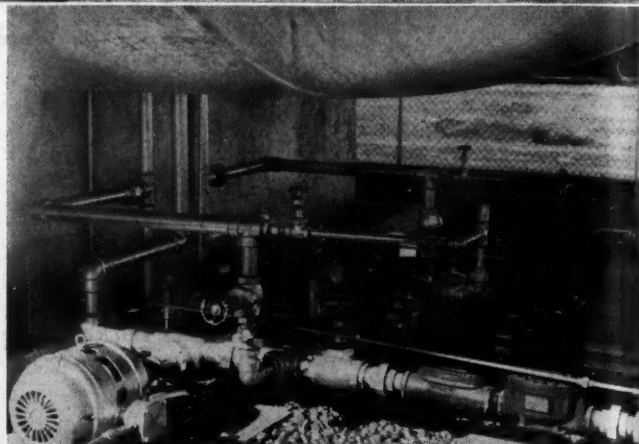
**Jackson, Mississippi • St. Louis, Missouri • Dayton, Ohio
Davenport, Iowa • Houston, Texas**



1. As fuel is withdrawn from the United Liquid Gas Co.'s transport loading plant, the storage tanks refill automatically through the pipe lines from the Standard Oil Co. Kettleman Hills plant.



3. Odorant is fed into the fuel streams from the elevated containers as the trailer tanks are filled. Pressure to inject the odorant is supplied by the propane cylinder on the ground.



2. Pumps and meters are so arranged that they fill two trailer tanks at once. They are manifolded so both fills may be butane or propane, or so one trailer may take propane and the other butane.



4. Two of the company's retail branches, Hanford and Huron, load their bulk trucks direct from the transport loading plant. A 1200-gallon truck tank fills in 23 minutes.

Distributor Builds Loading Plant

On Producer's Pipe Line

Cuts Mileage
Overcomes Delays
Lowers Cost

A DOUBLE trailer transport outfit is worth about \$12.50 per hour on the road, but it is just unproductive expense when it is lined up with a string of other transports waiting to be loaded. Also, if the transports necessary to supply 21 affiliated retail branches can be relieved of traveling 25 miles per trip up and down a steep, crooked highway, the transportation can be handled with fewer trucks and drivers.

This was the reasoning upon which the officials of United Liquid Gas Co., Fresno, Calif., based their decision to utilize 12½ miles of double 4-in. pipe line from the Standard Oil production facilities in Kettleman Hills, and to build a 60,000-gallon truck loading plant at the pipe line terminus in Huron, on the western edge of the San Joaquin valley.

Prompted By Acute Need

At the time the truck loading plant was installed late in 1950, the transportation problem out of Kettleman Hills had become critical, particularly during the winter season when product demand was greatest.

The only transport loading facilities were at the Kettleman Hills production plant and it was not uncommon to have trucks held up for from 4 to 8 hours waiting for their turn to load. In extreme cases, there was not enough product to supply all of the trucks in the line, and the tailenders had to wait extra hours until enough butane or propane had been produced to fill the transport tanks.

The longest wait on record was 36 hours. This resulted in a great increase in the cost of that load, but it did not add to the value of the prod-

uct or to the good will of customers who were watching their supply of fuel run out. In self-defense, the company felt that it was necessary to provide a means of eliminating the waits at the loading end, and the plan of installing the loading terminal provided the further desirable feature of eliminating the slow and costly trip up the hill and back to the valley.

The problem was complicated by the double pipe line and duplicate tanks which were necessary. The United Liquid Gas Co.'s marketing affiliate, Butane-Propane Supply Co., serves a territory in which the earliest extensive bulk marketing of L. P. gas took place. A great many of the early installations, most of which are still in use, were equipped for butane service, and this must be continued because the customer storage facilities are not of the type in which propane service is permissible. The company must stock and deliver both butane and propane. So, separate pipe lines and storage tanks are necessary for the two products. This dual need dictated the design of the plant, and the method of operation.

The storage plant is, to the best of the company's knowledge, unique in a number of respects. It is designed so the storage tanks refill automatically as the fuel is loaded into the transports.

The plant is protected with automatic controls which shut down all operations if the pressure in either tank becomes too high. These automatic controls, and the valves through which the tanks are filled, are operated by compressed air, and are so arranged that a failure of either the compressor or the electric power supply will make the plant in-

operative until corrections are made.

These automatic features make it practical to leave the plant unattended, and this necessitates careful selection and training of the drivers in the mechanical details of operating the plant and making the necessary records covering withdrawals. The record system is worked out so the meters in the pipe lines and those at the tank outlets are constantly checked against each other, and against the known capacity of the transport tanks. Whenever any one of the meters shows a discrepancy, an investigation is made to determine the cause.

Time Is Economized

Since withdrawals from the plant are normally made only into company equipment, it is possible to schedule operations so there is a minimum of lost truck time in the loading. In actual practice, this is reduced to minutes in case it is necessary to route two transports into the plant at the same time.

Two of the affiliated marketing branches, those located at Huron and Hanford, only about 40 miles away, fill their bulk delivery trucks at the Huron loading plant. Loading time for a 1200-gallon truck tank is about 23 minutes, including setting the valves, filling, closing valves, and the necessary paper work. In the case of Hanford, the road mileage involved is balanced off against the saving of investment in a local plant, plus transport time, unloading transports, and maintenance of a local plant. With all the other branches, which are located in the San Joaquin valley and the adjacent coastal area, the dis-

tance from the loading plant makes it more economical to maintain local storage plants and transport the fuel in double trailer outfits.

In addition to the automatic control valves already mentioned, the equipment of the loading plant includes a number of features which are worthy of mention. The compressed air line leading to the control valves is equipped with a dehydrator, which takes all moisture out of the line and thus minimizes the possibility of corrosion of working parts of the automatic valves. The float operated valves which control the filling of the storage tanks are in use several times each day, and the frequent motion tends to keep them working freely.

Emergency Valves Installed

The pressure controlled shut-off valves function only in emergencies. These have not yet been called upon to operate, and the management hopes that they will never be needed, but with the static position of their working parts, a small amount of corrosion might be disastrous, so it is most important that they be protected from moisture. The pressure valve on the propane line is set at 225 psi, and that on the butane line closes at 150 psi. These settings are a little above the pressure reached from atmospheric temperature, and since the plant is isolated from all other structures and the "housekeeping" is immaculate, the only possibility of the pressure valves coming into action would be in case of a fire which could affect the tank temperature, and this presumably could only originate in a vehicle in the driveway.

The fuel comes from the production plant unodorized, and the necessary odorant is added in the pump stream during the filling of the transport tanks. For satisfactory blending, the odorant is bled into the stream, using a charged propane cylinder to drive the chemical into the fuel. The operation of the odorizer is an important part of the training of all of the drivers.

The manifolding for the pumps, meters, and filling lines consists of 3-in. piping, reduced to 2½ in. at the two pumps. These are Smith Model MC-3 units, driven by 5 hp. electric motors, and are each capable of trans-

ferring 100 gallons per minute. The fuel passes through Neptune meters, Model D, 100 gallons per minute capacity. The 3-in. piping continues to the loading hoses, which are of standard 2-in. size. Valves are arranged in the manifold so both hoses may deliver the same product, or by rearranging the valve settings, one may deliver propane and the other butane. Maximum filling time for a double trailer outfit with both tanks taking the same product is 45 minutes, including paper work. To facilitate quick loading, 2-in. vapor return lines are used, manifolded similarly to the liquid lines, with standard 1-in. hoses connecting to the transport tanks.

As the result of two years of satisfactory operation, the company's figures show that the saving in truck time and expense, and the lowered number of vehicles required, are paying off the investment in the loading

plant at a satisfactory rate. Of equal importance, the reserve storage of seven transport loads has eliminated temporary product shortages during the critical winter heating period.

LPG Sales in Florida Increased 13% in 1952

Sales of liquefied petroleum gas in Florida were appreciably higher this year, the State Chamber of Commerce reported in January.

Sales in Florida increased by 13% in 1952, amounting to a total of 67,395,000 gallons.

Eighty-eight per cent of the liquefied petroleum gas sold in Florida was consumed in households and commercial establishments. In 1951, this domestic-commercial demand was 9% above 1950 and was met by the sale of 28,048,000 gallons of propane, 26,003,000 gallons of "mixtures," and 5,282,000 gallons of butane.

ESTIMATED DISTRIBUTION OF U. S. BUILDING FIRE LOSSES BY CAUSES, 1951*

These estimated figures are intended to show the relative order of magnitude of fire losses by causes, and while they are reasonable approximations based on the experience in typical states, they should not be taken as exact records for each class.

	No. of Fires	Losses
Chimneys, flues—defective or overheated.....	31,000	\$ 26,000,000
Sparks on roof	16,000	11,400,000
Defective or overheated heating equipment....	50,000	50,000,000
Rubbish	37,000	8,900,000
Combustibles near heaters	8,700	8,000,000
Open lights, flames, sparks	20,000	14,250,000
Hot ashes, coals	9,600	11,950,000
Smoking and matches	96,800	56,600,000
Children and matches	20,100	7,340,000
Electrical, fixed services, fires due to misuse, or faulty wiring and equipment	54,500	75,000,000
Electrical power consuming appliances	21,300	13,000,000
Flammable liquids, misc., including home dry cleaning and starting fires with	16,500	25,100,000
Torches, welding, cutting, plumbers, etc.	5,700	7,300,000
Lamps, lanterns, oil stoves	24,700	25,600,000
Gas and appliances	8,900	10,800,000
Grease, tar, etc.	13,000	5,210,000
Spontaneous ignition	17,000	29,100,000
Lightning	32,500	30,900,000
Thawing pipes	3,000	4,800,000
Sparks from machinery, friction	5,000	7,000,000
Incendiary, suspicious	5,600	16,100,000
Miscellaneous	52,700	21,700,000
Unknown	50,500	224,000,000
Explosions	9,000	22,600,000
Exposure	15,900	26,900,000
TOTAL	625,000	\$739,550,000

* Released by National Fire Protection Association.

the



Automatic Gas Water Heater is Ready!

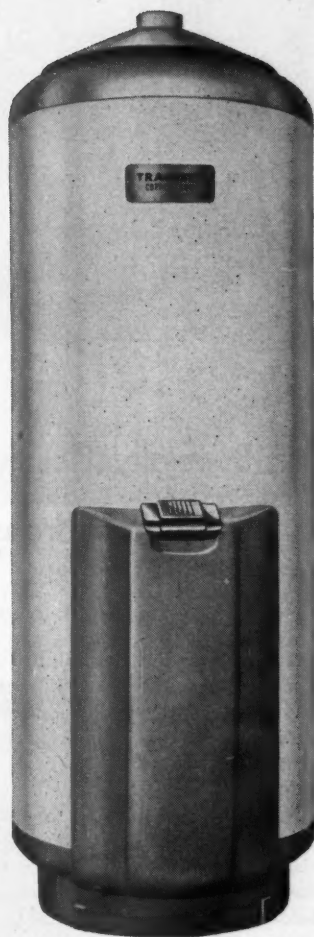
THIS is a *quality* heater on which you can count for a lifetime of service, free of repairs and replacements.

Trageser engineers have devoted many years to the development of a water heater which would meet the century-old tradition of Trageser quality, would use pure copper for heating and storing the water, and yet would be reasonably priced. The "Copper Core" Heater fulfills these requirements.

Its central element — the core — is a rugged copper tank, immune to rust and corrosion. This is completely encased in a heavy steel tank to make a unit of extraordinary strength and durability.

All working parts of the new Trageser Copper Core Heater are concealed from view. All are immediately and easily accessible inside the front cover plate. Central flue and new type flue baffle give maximum heat transfer and high recovery rate. High-wall combustion chamber provides a deep sludge well and minimizes the effect of sludge accumulation. A.G.A.-approved.

Send for catalog and price list.



The NEW Trageser Copper Core Automatic Gas Water Heater

Trageser Copper Core Tank
Capacities: 30, 45, 60 and 80
gallons (30- and 45-gallon
sizes available now in limited
quantities; larger sizes
later)

Operates on natural, manufac-
tured, LP, mixed, and LP-
air gases.

Guarantee: 10 years in accord-
ance with warranty.

Rockwell Gas Regulator

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Fiberglass Insulation

Approved by A. G. A.

Send for catalog and price list.



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FEBRUARY, 1953



Specially Designed Equipment Needed By Anhydrous Industry, Says AAI

IN two years the Agricultural Ammonia Institute has come a long way. As its new president, Jeff Davis, phrased it at the second annual convention in Dallas last December, the industry is "a big girl now."

Nearly 400 delegates turned out for the 1952 convention—evidence of the vision of 34 men who had met to form the institute almost exactly two years before, in December of 1950, and elected Ed H. Gill their first president. The institute is now in the process of branching out even further by forming regional groups.

Last December *Butane-Propane News*, in an effort to determine how many LPG dealers are handling and expect to handle anhydrous ammonia, sent questionnaires to 4450 bulk plant operators in the United States. Replies were received from 1063 (24.9%). Of these, 2.2% of the plants replying now handle anhydrous ammonia; 6.8% of the plants replying plan to handle anhydrous ammonia in 1953, and 2.8% of the plants replying are undecided about handling anhydrous ammonia this year.

It is significant that three times as many bulk plants plan to handle an-

hydrous ammonia in 1953 as handled it in 1952.

This gives an indication of the growth of the anhydrous ammonia industry and of the strides made by the institute in promoting anhydrous ammonia as a fertilizer.

The institute and its committees and subcommittees are proceeding along several different avenues in attempting to increase anhydrous ammonia distribution. Roughly, these may be classified as improving sales methods, trying to get manufacturers to develop special equipment for anhydrous ammonia rather than attempting to re-adapt LPG fittings, improving safety, and developing specifications for the design of tanks.

At the December convention several new steps were taken to achieve these ends. Possibly the most important was the report of the Engineering Standards and Standardization Committee, presented by its chairman, Charles H. Boylan, the Weatherhead Co., which recommended to the general assembly as follows:

1. They strongly urge the valve and fitting manufacturers to start work immediately on a new type of relief valve which will be more dependable than those presently in the market.

The 1953 board of directors of the Agricultural Ammonia Institute. Standing (left to right): Joe Whittington, Ed Gill, K. (Doc) Eldon, J. L. Tullis, W. D. Cook, Ernest Fannin, Virgil Rule, F. J. Schwarzer, R. E. Poethig, (alternate for Col. Ellsworth L. Mills), E. W. Thomas, Tully W. Talbot, Geo. W. Gray, J. L. Brooks, Charles H. Boylan, J. C. Berry, John W. Dugan. Sitting (left to right): Clyde Marshall; Gen. R. H. Wooten, treasurer; Hampton Pugh, 2nd vice president; Jeff I. Davis, Jr., president; Mark C. Craft, first vice president; W. D. Tucker, Jr., secretary; M. B. Raub; W. M. Banks.

2. They recommended that a concentrated study be made of the settings of excess flow check valves by the valve manufacturer in an effort to determine the proper rates of flow settings for the various sizes of valves.

3. They recommended that the valve and fitting manufacturers develop a new type of filler and vapor valves which will allow a greater rate of filling.

4. They recommended that the use of the plug and/or gate type shut off valve in the anhydrous ammonia industry be restricted as follows:

- (a) They should be used only on bulk storage installations; and when installed, they should be located in a position where likelihood of the valve's being kicked open is minimized.

- (b) The possibility of the valve's creating water hammer, due to quick closing mechanism, should also be taken into consideration.

- (c) Such shut-off valves should not be used on mobile units such as tractor units, trailer units and transport trucks.

5. They also recommended that the subcommittees of tank fabricators, valve manufacturers and dealers get together and decide upon standard sizes of opening into the tanks and standard sizes of valves.

The Dealers' Sub-Committee recommended that the Standardization

By Craig Espy



Which
would
you
pick?



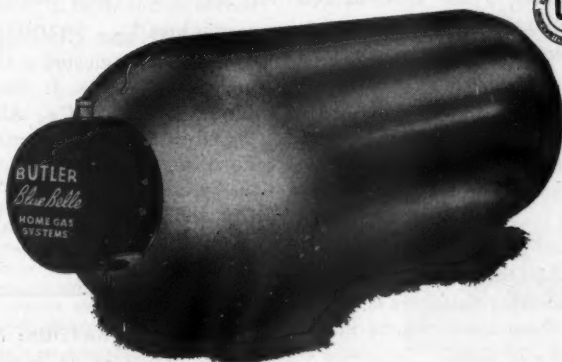
YOUR CUSTOMERS, TOO, have an eye for beauty . . . products that are smooth, streamlined, modern.

That's why your customers will prefer the attractive appearance of Butler Blue Belle Home Gas Systems.

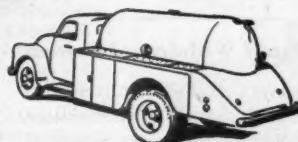
Butler Blue Belles are glossy, streamlined, blue and aluminum beauties designed for customer appeal. Customer satisfaction is assured, too. Blue Belle Systems are triple-tested and approved for safety and efficiency.

These superior Blue Belle Systems naturally provide extra benefits for you. You save time, money and labor because the practical end fittings mean easier handling, installing and servicing.

You and your customer benefit when you sell him a Blue Belle system.



Your LP-Gas operation will always be more profitable when you invest in economical, efficient Butler LP-Gas Transports and Truck Tanks.



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OIL EQUIPMENT — STEEL BUILDINGS
FARM EQUIPMENT — CLEANERS EQUIPMENT
SPECIAL PRODUCTS

For complete information on Butler LP-Gas Equipment, write today to the office nearest you. We'll be pleased to have our representative call on you at your convenience.

BUTLER MANUFACTURING COMPANY

7410 E. 13th Street, Kansas City 26, Missouri
910 6th Ave., S.E., Minneapolis 14, Minnesota
Dept. 10, Richmond, California

JEFF DAVIS SAID:

The farmer is the one who must be sold on nitrogen.

Demonstration is the finest method for selling the farmer.

Service is also very necessary in selling. Must furnish service to keep a customer. Service is most important phase of your business.

The dealer in ammonia can't afford to be without a safety program. Must check on safety of his equipment, safety of fittings, etc.

The dealer must take the producer into his planning.

The equipment manufacturers want to know what equipment is needed, how equipment performs, etc.

Standardization on size of tanks needed.

Work closely with farm agents, vocational teachers and others in getting the anhydrous ammonia story over to farmers.

Committee appoint a sub-committee consisting of members of the tank manufacturers, equipment manufacturers and valve and fitting manufacturers to draw up specifications for the design of anhydrous ammonia tanks of various sizes to be known as AAI tanks. These specifications should include length, diameter, number of openings, size of openings, location of openings and location of lifting lugs and mountings for various capacities of tanks.

They further recommended that when these specifications are complete that they be published by the Agricultural Ammonia Institute as typical AAI tank specifications and that all tank manufacturers be urged to follow these specifications in the manufacture of tanks.

Want Liquid Withdrawal System

The Dealers' Sub-Committee also recommended that a sub-committee be appointed to draw up a set of standard specifications for a complete liquid withdrawal system on an ammonia tank. The specifications should include the size and capacity of all valves and hose to be used in the entire system and should be published as a guide to dealers in assembling systems. Also, that the valve, equipment and hose manufacturers in conjunction with the State Inspectors and Dealers be represented on this sub-committee.

The Tank Fabricators Committee reported as follows:

"We as a group pledge ourselves to build A.S.M.E. tanks.

"We prevail upon the state inspectors and insurance inspectors to enforce strict adherence to the A.S.M.E. Code for shop inspection under their jurisdiction.

"A.A.I. prevails upon all states to adopt the A.S.M.E. Code for A.A.I. tanks and promulgate laws and regulations covering the A.A.I. in their state.

"A.A.I. prevails upon dealers and users that they comply with the A.S.M.E. Code after tanks leave the fabricator. This pertains largely to welding and changes by non-code procedures. It is pointed out that non-code welding or changes may result in the release of the A.S.M.E. fabricator from responsibility.

"A.A.I. start immediately formulating a set of recommended rules and regulations which may form the basic document to be presented as a guide toward uniform laws throughout the Nation. It is suggested that the best points of existing state regulations, CGA Rules and Recommendations of the Standardization Committee be combined in these proposed regulations."

New officers elected at the meeting include: J. I. Davis, Jr., Southeastern Liquid Fertilizer Co., Albany, Ga., president; Mark C. Craft, Midwest Fertilizer Co., Springfield, Ill., first vice president; Hampton Pugh, Pugh Gin and Fertilizer Co., Tillar, Ark.,

LPG OPERATORS: NOTE

According to Marvin Gieger, chemist at the agricultural experiment station, Mississippi State College, experiments at State College show that when a mixture of anhydrous ammonia and butane or propane is burned, hydrocyanic acid, which is very poisonous, is formed. Propane or butane which is to be used for household purposes should not be put into tanks which have been previously used for anhydrous ammonia unless the ammonia is completely removed.

Ammonia may be completely removed from tanks by first draining the liquid ammonia and then blowing the fumes out or filling the tanks with water, which will absorb the ammonia, and draining. No odor of ammonia should remain in tanks which are to receive household butane or propane.

second vice president; W. D. Tucker, John Blue Co., Huntsville, Ala., secretary; and Maj. Gen. Ralph Wooten, Mid-South Chemical Co., Memphis, Tenn., treasurer.

Mona Jennings, who has assisted in the organization program of the institute since it started in late 1950, will continue as office manager for the association. K. (Doc) Eldon was general convention chairman and L. A. Burns was chairman of the entertainment committee.

Regulations and Orders Issued For LPG Industry

Recent legislation affecting the L. P. gas industry includes a new regulation issued by the Federal government to establish ceiling prices for certain sellers of automotive and farm equipment repair services. Designated Supplemental Regulation 26 to C. P. R. 34, it applies to sellers of these services who also sell automotive or farm equipment and whose total volume of customers' labor sales was less than 50% of the total dollar volume of sales of their entire business during a representative period.

Along the state regulation trail, the Fire Marshal division of the Michigan state police has issued in pamphlet form its revision of the L. P. gas regulations which became effective last June. The regulations follow NFPA Pamphlet No. 58 with some slight variations.

And the New Hampshire Board of Fire Control of the Office of the Fire Marshal has issued its rules and regulations covering the storage and transportation of L. P. gas, also in pamphlet form. These regulations, too, follow NFPA Pamphlet No. 58.

Copies of either of the sets of regulations may be obtained from the above agencies.

Grease Walls of Spray Booth To Make Cleaning Easy

Do you have trouble getting rid of the accumulation of waste paint on your cylinder spray booth walls? Why not keep them clean the way the Ford factories do? Next time you clean them off, spread a coat of cheap grease on the walls and surfaces where the paint clings.

When you need to clean the booth, a few minutes work with a scraper will peel all the old paint off. Grease it again and you are ready to renew the operation.

NEW SMITH PUMP

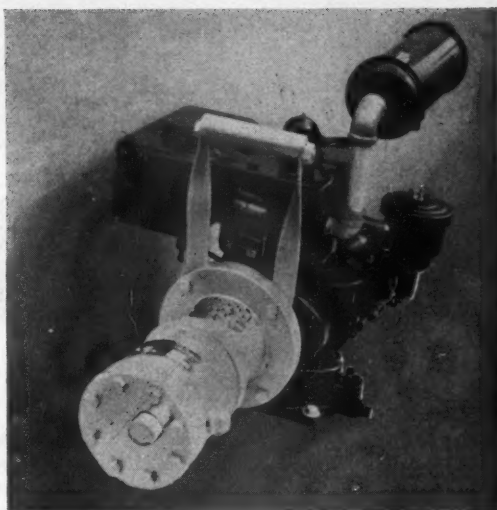
Powered by Gasoline Engine

Smith Precision Products Company announces a new 8 to 10 gallon-per-minute Model GC-1 pump designed to be driven by a gasoline engine, for use in areas where electricity is either not available or is inconvenient to use. The Model GC-1 is similar to the electric-driven Model MC-1, but the pumps are not interchangeable.

Model GC-1 develops a differential pressure of 75 psi with ease, and will fill truck or tractor fuel tanks at the rate of 8 to 10 GPM, with or without a vapor return connection. Single 100 lb. cylinders and trailer bottles, as well as other small tanks, can be filled with this pump as quickly as with any larger unit.

The GC-1, like its electric counterpart Model MC-1, mounts on a flange at the face of the engine, thus eliminating the weight and extra expense of the separate base that normally has to be supplied with a unit of this type. The late model No. 6-F-B Briggs and Stratton Gasoline Engine is specified. The ignition system and spark plug are shielded, and an efficient spark-arrestor muffler is supplied. While this special equipment makes gasoline engines safe in LPG service, these engines must not be considered to be explosion-proof in the same sense as electric motors bearing the Underwriter's label, and their use may be subject to the approval of local state, county, and municipal safety authorities.

The Model GC-1 pumping unit, complete with gasoline engine, is lighter in weight and is more portable than the MC-1. The initial price is also about 15% lower, due to the reduced cost of gasoline engines. For areas where electric power is not available, this is a very satisfactory unit. Larger gasoline-engine-powered pumps are also available from the factory on special order.



A SERIES DISCUSSING THE MOST EFFECTIVE SERVICE RANGE FOR



**FILLING TRUCK and TRACTOR TANKS,
100# CYLINDERS and TRAILER BOTTLES**

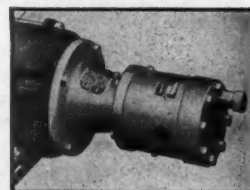


Model MC-1 has a transfer capacity of 4 GPM at 1800 RPM, and 8 to 10 GPM at 3600 RPM, developing a differential pressure of 75 psi at either speed. For filling small cylinders and trailer bottles a 1/2 HP 1800 RPM motor is used, and a 3/4 HP 3600 RPM motor is recommended for filling two cylinders at a time or for fueling trucks and tractors. The unit may be operated on ordinary 110 volt house lighting circuits or any other common electric (AC) current. The cost of the MC-1 is about half that of the larger MC-1044 unit.

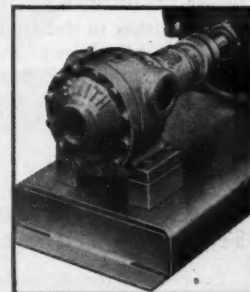
Model MC-1044 is recommended where faster filling of motor vehicle fuel tanks is desired. It delivers 15 to 20 GPM with or without vapor return line, developing 40 psi differential pressure with a 1 1/2 HP motor and 75 psi with a 2 HP motor. The MC-1044 is suitable for fast fueling of motor vehicles and for filling up to 3 cylinders on a manifold.

Both of these pumps are equipped with our exclusive leak-proof, self-adjusting packing. They require no service attention of any kind and thus are ideal for use on farms, ranches or in isolated locations where operation of the pumps may be left to inexperienced persons.

Write for further details on these and other Smith Precision bulk plant or truck mounting pumps. There are 10 models available covering a range of capacities from 4 to 150 GPM for direct truck power take-off drive or direct connection to electric motors.



Model MC-1



Model MC-1044

SMITH

PRECISION PRODUCTS COMPANY

1135 MISSION ST., SOUTH PASADENA, CALIF. • PHONE PYRAMID 12293



ASSOCIATION NEWS

Southeastern District Convention

The Biltmore hotel in Atlanta, Ga., will be the site of the third annual Southeastern District LPGA convention and trade show, March 23-25.

Booth space is available in the exhibition hall of the hotel for exhibitors and the association expects the trade show to be the biggest of any so far held. Ample time has been provided in the program to allow members and their guests to spend much of their time in viewing the exhibits.

The convention program has been designed to "Sell LPG in '53." Men who have made outstanding records in the Southeastern retail gas field will speak on advertising and selling and a leading market research expert will sum up and take a look at future markets.

The materials that may be displayed include LPG systems, gas consuming appliances, measuring instruments, recording and control apparatus, gas storage utilization equipment, and other products pertaining to the storage, transportation, or utilization of LPG.

In addition to the trade show and the convention program, there will be a banquet and floor show on Wednesday, the 25th, and dozens of prizes will be offered to delegates and guests.

Four Service School Dates Selected For Current Year

Specific or tentative dates for several L. P. gas service short-courses scheduled for 1953 have been announced. The Midwest L. P. gas service school will be held April 15-17 at Iowa State college, Ames, and the Southern L. P. gas service school is planned for the week of May 24 at

Louisiana State university, Baton Rouge.

The eastern school is set for Sept. 9-12 at the University of Bridgeport, Bridgeport, Conn. Arrangements are also being made for a short-course early in 1953 at Purdue university, Lafayette, Ind., and for a session later in the year at the University of Minnesota at St. Paul.

LPGA Board Recommends New Cylinder Tests

In his first official report as chairman of the Technical and Standards Committee, A. H. Menuet, chief engineer of Skelly Oil Co., presented to the Dec. 4-5 board meeting of the Liquefied Petroleum Gas Association a proposal for simplification of Interstate Commerce Commission requirements on the retesting of L. P. gas cylinders.

Mr. Menuet said that an exhaustive two-year study conducted by a special subcommittee revealed that, although many thousands of cylinders are subjected to hydrostatic expansion tests each year under current ICC regulations, more than 16 times as many are voluntarily taken from service as a result of visual inspection than are rejected because of failure to pass the hydrostatic test.

The LPGA board approved the recommendation and the Compressed Gas Association has been asked to review the research results with the view of petitioning the ICC to eliminate the hydrostatic test in favor of exterior inspection.

Mr. Menuet has been one of the most active members of the Technical and Standards Committee for 15 years. He assumed the chairmanship last fall, with a long and distinguished career in the petroleum business to his credit. In his work both for the Skelly Oil Co. and the LPGA, he has

made many contributions to L. P. gas industry advancement, notably in the development of improved safety standards.

A number of revisions in Pamphlet 58, "Standards for the Storage and Handling of Liquefied Petroleum Gas," to be suggested by the Technical and Standards Committee to the National Fire Protection Association were also submitted by Mr. Menuet and approved by LPGA directors at their New Orleans meeting. Most of the recommendations represent changes in standards and the working of the text considered essential to keep this "safety bible" abreast of recent industry developments. L. P. gas equipment used in the operation of tractors, busses, taxicabs and other mobile units came in for considerable attention in the proposed revisions.

Mr. Menuet told the board that T & S subcommittees are currently working on 12 important research projects.

Establishes 7th District Office at Harrisburg, Pa.

Establishment of a new district office of the Liquefied Petroleum Gas Association at Harrisburg, Pa., is announced by Howard D. White, Chicago, executive vice president of the organization. The branch headquarters were due to open Feb. 1 at 2501 N. Front St. with William H. Plank in charge as district secretary.



Wm. H. Plank

The new East Central District office will serve the states of Pennsylvania, New York,

OR LP-gas

METERED SERVICE SYSTEMS

STANDARDIZE ON

SPRAGUE

field-proven

**meters and
regulators**



Simplicity of design, fewer working parts assure long life, accuracy and fewer service calls. Our 1A Sprague Meters are a natural for LP-Gas.

Sprague 1A Combination Meters and Regulators for multiple sets with single tank installations.



THE SPRAGUE METER COMPANY
BRIDGEPORT 4, CONNECTICUT

Branches in — Davenport, Iowa Houston, Texas
Los Angeles, Calif. San Francisco, Calif.

New Jersey, Maryland, Delaware, Virginia and West Virginia. It is the seventh regional branch to be formed by the national trade association. Others are located in Wichita, Kan.; Sacramento, Calif.; Denver, Colo.; Boston, Mass.; Atlanta, Ga., and Chicago, Ill.

Mr. Plank, who comes to the association after six years as owner of Plank's Home Center, an L. P. gas dealership at Hollidaysburg, Pa., has been serving as secretary-treasurer of the Pennsylvania LP-Gas Association. Prominent in community activities, he has been president of the Hollidaysburg Chamber of Commerce and other local organizations.

Affiliation of the Indiana LP-Gas Association with LPGA under its state integration plan is also announced by Mr. White. This brings the total number of states now integrated with LPGA to 27. The Indiana group will be served by the national association's North Central District office, Chicago.

Florida

The board of directors of the Florida L. P. Gas Association held a joint meeting with a one-day sectional service school at Gainesville, Dec. 3.

The Florida LPGA plans to hold its annual state convention at Palm Beach, April 16-18.



New consumer booklet, "Better Living . . . With LP-Gas," produced by National Committee for LP-Gas Promotion, Chicago, for sale to industry companies, is displayed by Tudy Golden. Illustrated, three-color, 28-page selling tool contains promotional copy on home and farm uses of L. P. gas, recipes, kitchen and utility room layouts, water heater sizing guide and helpful data on heating equipment. Entire back page and space on front cover are left blank for local imprinting.

Idaho

The Idaho L. P. Gas Association recently held its annual fall meeting at Boise. During the meeting, L. J. Thatcher, Northwest Butane, Boise, was elected president, and Ted Cox, American Propane Co., Nampa, was re-elected secretary-treasurer.

Indiana

T. M. Feely, Indianapolis, secretary-treasurer of the Indiana association, has announced that the organization will hold its annual convention March 30-31 at the Claypool hotel, Indianapolis, instead of Feb. 23-24 as originally planned.

A trade show, similar to ones held in recent years, will also be held.

Kentucky

Melvin E. Gayer



The Kentucky LPGA has chosen July 26-28 as the dates for its sixth annual convention with the Seelbach hotel in Louisville, Ky., as the meeting place.

Convention events will include a trade show, the usual speaking sessions, and the annual business meeting on Monday afternoon. A buffet supper on Sunday evening to open the convention and a banquet and floor show on Monday evening will make up the entertainment.

Members of the convention committee are: President Melvin E. Gayer, Webb Gas & Appliance Co., Warsaw, as general chairman; Gene McDonald, E-town Gas Co., Elizabethtown, trade show chairman; Mr. and Mrs. B. L. Hankins, Hankins Appliance Co., Jett, registration co-chairmen; Mrs. James A. Rees, Mason County Implement Co., May's Lick, ladies entertainment chairman; Mrs. Rees has on her committee Mrs. Melvin Gayer and Mrs. Randolph Long, Western Kentucky L-P Gas Co., Sturgis. Robert Fiorella, Imperial Oil Co., Owensboro, is also a member of the general convention committee. On the trade show committee are W. C. Abel, Magic Chef, Inc., Lexington,

and James A. Varnado, Delta Tank Manufacturing Co., Lexington.

Another association development has to do with service schools. There is a possibility that the Kentucky State Fire Marshal, J. T. Underwood, Jr., will take over the responsibility for service schools throughout the state. Mr. Underwood thinks that the department of insurance can pay the salary and expenses of a qualified instructor on "Approved Practices" and "Approved Appliances" from the funds that have been paid into the L. P. gas division of this department.

If this happens, the association will discontinue its own service school program and instead will inaugurate a program of district sales schools.

New England District, LPGA

According to Lou Davis, Northeastern LPGA district secretary, George D. Hammond, Rural Gas Service, Westfield, Mass., has been appointed treasurer of the LPGA of New England.

He will serve the unexpired term of Larry Holman.

Pennsylvania Regional Meeting Held At Harrisburg

A regional meeting of the Pennsylvania Liquefied Petroleum Gas Association was held in January in Wilkes-Barre at Hotel Sterling with officers and directors of the state organization in attendance. The region comprises a five-county area.

Directors' meeting was held in the afternoon, followed by a dinner.

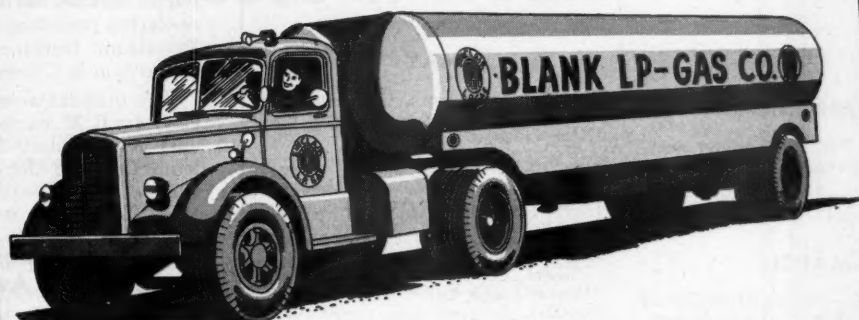
A. C. Horner, Harrisburg, state president, who was dinner chairman, spoke on the future of bottled gas and business methods of dealers. Other speakers at the dinner included Edward Shaeffer, of Burnham, and William Plank, of Hollidaysburg, regional secretary of National LPGA, with offices at Harrisburg, who discussed the national organization.

Regional directors who attended the sessions: William F. Cutten, Wyoming; Mark Hainig, Oxford; Peter Myers, Edward Shaeffer, Albert Eby, Harrisburg; M. G. Cook.

Wisconsin

A gas-versus-electricity cooking demonstration highlighted the meeting of the Wisconsin L. P. Gas Association at the Park hotel in Madison, Dec. 9. Bill Johnson and Frank Henke, Harper-Wyman Co., Chicago, performed this demonstration.

Additional features of the meeting,



**"Here's a picture of me
with five passengers"**



Unseen passengers ride in every tank car and truck of SINCLAIR LP-Gases. They aren't visible to anyone, but they're always there to help all concerned, from refinery through to consumer.

These passengers stand for such *hidden assets* as INTEGRITY, REPUTATION, RESPONSIBILITY, PERFORMANCE and GOOD SERVICE.

That is why distributors and consumers prefer SINCLAIR LP-Gas, for its high heating values, with moisture and impurities removed. *Investigate.*

SINCLAIR

A Great Name in Oil

SINCLAIR OIL & GAS COMPANY

• Liquefied Petroleum Gas Division

• Sinclair Building, Tulsa, Okla.

FEBRUARY, 1953



CALENDAR

All associations are invited to send in dates of their forthcoming meetings for this calendar.

1953

FEBRUARY

- Feb. 2**—New York LPGA winter meeting. Hotel Syracuse, Syracuse.
- Feb. 23-24**—New Jersey LPGA, Ritz-Carleton hotel, Atlantic City

MARCH

- March 23-25**—Southeastern District Convention. Biltmore hotel, Atlanta, Ga.
- March 30-31**—Indiana L. P. Gas Association. Convention and Trade Show. Claypool hotel, Indianapolis.

APRIL

- April 13-14**—Assn. of Nebraska LPG Dealers. Annual Convention. Fontenelle hotel, Omaha.
- April 15-17**—Midwest L. P. gas service School. Iowa State College, Ames, Iowa.
- April 16-18**—Florida L. P. Gas Assn. Annual meeting. Palm Beach.
- April 17-18**—Liquid Gas Dealers Association of California Convention. Alexandria Hotel, Los Angeles.
- April 19-21**—Mississippi L. P. Gas Dealers Assn. Annual convention. Edgewater Gulf hotel, Edgewater Park, Miss.
- April 29-30-May 1**—NGAA Annual Convention. Rice hotel, Houston, Texas.

MAY

- May 3-6**—National LPGA convention and trade show. Conrad Hilton hotel, Chicago.
- May 20-22**—Gas Appliance Manufacturers Assn. Annual Meeting. The Greenbrier, White Sulphur Springs, W. Va.
- May 24**—Southern L. P. Gas Service School. Louisiana State University, Baton Rouge, La.

JUNE

- June 7-8**—Utah L. P. Gas Association. Salt Lake City.
- June 8-9**—South Dakota Liquefied Petroleum Gas Assn. Alexander Johnson hotel, Rapid City.
- June 16-18**—Missouri L. P. Gas Assn. Annual convention and trade show. New Jefferson hotel, St. Louis, Mo.
- June 24-26**—Texas Butane Dealers Assn. Annual convention and trade show. Baker and Adolphus hotels, Dallas.

AUGUST

- Aug. 31-Sept. 2**—Alabama L. P. Gas Dealers Association. Montgomery.

SEPTEMBER

- Sept. 9-12**—5th Eastern Gas Service School. University of Bridgeport, Bridgeport, Conn.

which was presided over by W. F. McCormick, president of the Wisconsin group, included a discussion of local problems pertaining to the L. P. gas industry, a question-and-answer panel on state enforcement problems, and two speeches presented by I. F. Staatz, director of fire prevention, Wisconsin Industrial Commission, and Paul Courtney, National Tax Equality Association.

W. S. Brenckle, association vice president, presided at the noonday luncheon, and J. H. Brinke, A. O. Smith Corp., Chicago, was the evening banquet speaker.

LPGA Board Selects Officials For Honorary Membership

Following its established custom of the last several years, the LPGA board of directors has elected to honorary membership several men who have earned commendation because of their constructive support of the LPG industry.

The selections were made at the New Orleans quarterly meeting of directors in December and those named are:

Charles Scott, state fire marshal, Ohio; John E. Cronin, state oil in-

spector, Colorado; A. R. Allen, deputy state oil inspector, Colorado; and Sergeant L. E. Patterson, division of New Jersey state police.

API Re-elects Officers At Fall Convention

L. S. Wescoat, Pure Oil Co., was re-elected chairman and Frank M. Porter, Fain-Porter Drilling Co., was re-elected president of the American Petroleum Institute at its annual convention in Chicago.

Vice presidents named at the conclave are R. M. Bartlett, Gulf Oil Co.; John G. Newton, Magnolia Petroleum Co., and John G. Pew, Sun Oil Co.

Successful Salesmen Win Protane Gas Awards

Winners of the fall and winter sales contests at Protane Gas Service, Erie, Pa., were announced at the company's annual Christmas dinner. Top honors for the fall effort went to Charles Schauble, manager of the Erie district. Leslie Goldinger, manager for Conneaut Lake, Pa., took first place for the winter competition.

Kenneth Wilhelm, of the Erie office, and Gaylord McGill, of Conneaut Lake, shared honors with their managers as league-leading salesmen.

Servicemen turning in the greatest number of leads received gold wrist watches. James Maguire was the winner for Erie and Charles Cowden was high man for Conneaut Lake.

H. N. Forman, president, made a brief talk in which he thanked everyone for their part in giving Protane the greatest year in its history. George Lutjen, office administrator, acted as toastmaster and Ross Albion, operations manager, made the contest awards.

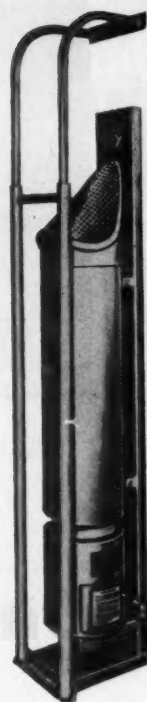
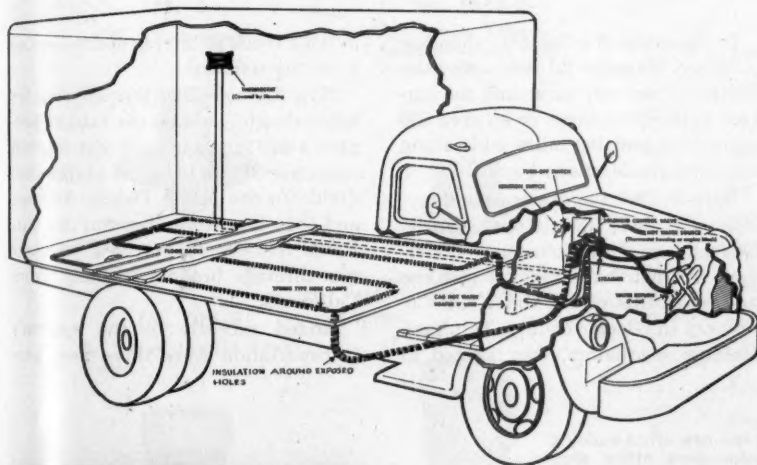
1952 LPG Sales In Colorado Increased 6 Million Gallons

Only the television industry is expanding faster in Colorado than the bottled gas business, according to F. N. Mabey of Denver, national president of the Liquefied Petroleum Gas Association.

Consumption of butane or propane in Colorado has increased from 34,803,000 gallons in 1950 to more than 41 million gallons in 1951, he said, and the rapid expansion is continuing. A total of 102 bulk plants supply 226 dealers in Colorado with most of the products being used for domestic purposes.

THE first cargo heater was designed and engineered several years ago by Utilities Distributors, Inc., of Portland, Maine, at the request of trucking companies in northern New England who needed some method of protecting perishable goods, particularly potato shipments, in cold weather. It was first known as the Anderson truck heater.

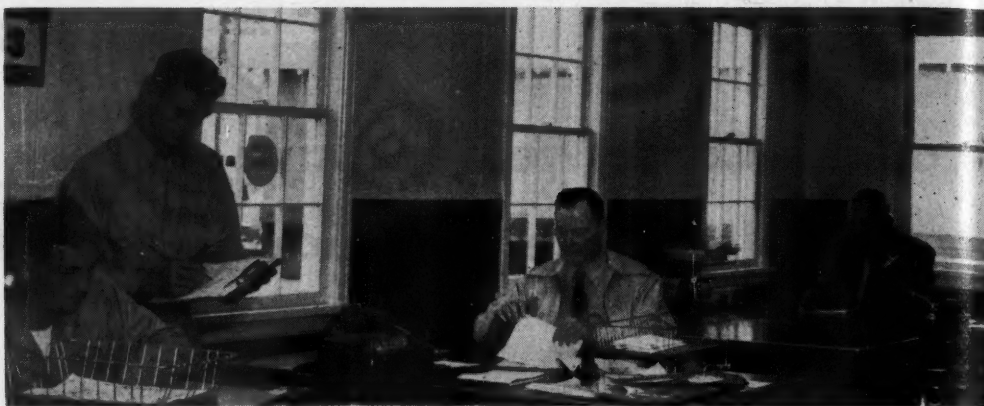
Other manufacturers have since developed heaters of other designs, some of which are shown here, and today there are several different types on the market using a variety of methods.



The Cargo-Guard convection heater is thermostatically controlled, fully automatic, and equipped with 100% safety shut-off. It takes up less than 1 sq. ft. of floor space; protects loads in insulated trucks to 40° below zero. A patented venturi-type discharge of air stream produces in excess of 160 cu. ft. per minute of 275° air, thereby assuring rapid circulation and replacement of lost heat. In the larger vans, the heater will change air more than six times per hour and it is rated at 20,000 Btu. Meets requirements of ICC regulations and is approved by AGA Laboratories.

The Luminator radiant cargo heater comes in two models; both heat the floor of the trailer by means of liquid circulated through pipes. The model shown at left operates by utilizing the heat ordinarily dissipated by the radiator, circulating engine water through copper tubes with spiral fins mounted on the floor of the truck. A thermostat activates a solenoid valve connected to engine water circulation. The other type uses a separate propane heater to warm the circulating liquid.

FEBRUARY, 1953



In this office at Cut Bank the brain work and bookkeeping is done for distribution of more than half a million dollars' worth of propane a year over 60,000 square miles of northern Montana. At right Manager Ed Skabo grabs the phone to discuss a problem with one of the firm's seven branch managers. At center is Wes Swogger who runs the Cut Bank office. Working at left are Alfred Allison, service man, sitting, and Adolph Bertelson, Jr., trucker.

Only Scratching ... at Half a Million Per Year

By AVON WILSON

GLACIER Distributors at Cut Bank, Mont., adopted a little sideline business they didn't want in 1940—a one-ton truck hauling bottles of propane from the local refinery. Now it's a prized baby, producing well over half a million in dollar volume a year. This, with the appliance trade added, now makes 75% of the firm's business.

In the midst of a \$60,000 expansion program, Manager Ed Skabo says the company has only scratched the surface in its effort to serve an area 600 miles long and 100 miles wide along the northern Montana border.

Back in 1940 the present owners—Robert E. Lee, Irvin Hupp, Wilfred Nadeau and Ray Johnson—undertook the distribution of the gasoline and lubricants of the Union Oil Co. refinery in Glacier county. To please Union's negotiators, they agreed to

detail a truck to haul propane bottles from the refinery.

Now Glacier Distributors require approximately a tank car load of propane a day for their eight distribution centers scattered from the continental divide to the North Dakota border, and they have to go beyond the Cut Bank refinery to get 25% of their gas through brokers, usually from California.

Added recently to the system's transportation were three new pro-

Beside one of the company's large bulk tanks is this new office building of Glacier Distributors which will house a display room, office, shop and garage.





No. 610
1 1/4" Liquid Fill Valve with
double back check.



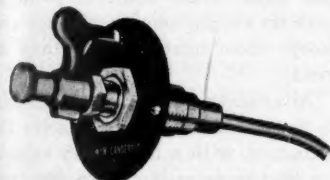
No. 712
3/4" Vapor Return Valve.
Back check with excess flow
check.



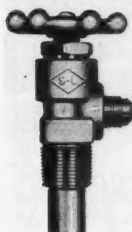
No. 650
3/4" Liquid Fill Valve with
double back check.



No. P-431
3/4" Safety Relief Valve.



No. 1
3/4" Rotary Gauge.



No. 1445-B
3/4" Service Valve for
liquid and vapor with-
drawal.



No. 10B-D
1/4" Fixed Liquid Level
Gauge.



Pipe-away Adaptor for No.
445 and 455 Safety Relief
Valves.



Internal Relief Valve with
Rain Cap.



Internal Type Relief Valve
No. 445 - 1" and No. 455
- 1 1/4".



No. 640
1 1/4" Liquid Fill Valve with
double back check for
direct connection to Hose
Nozzle.



No. PW-200
Safety Hose Nozzle.



**The most modern, most complete line of
LP-Gas equipment for motor fuel tanks**

Here at Selwyn-Landers you can obtain from one source every fitting required for LP-Gas engine fuel tanks. This means one central responsibility for product performance and service. We were among the first to concentrate in the LP-Gas automotive field and the benefit of this experience is built into every S-L product. Through the years we have learned much regarding your particular problems of installation and application. Please feel free to call on us.

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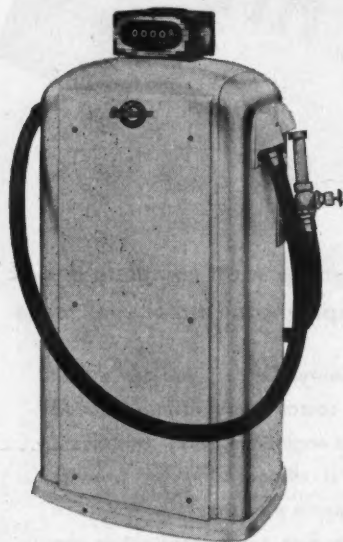
**COMPLETE LINE OF LP-GAS EQUIPMENT
FOR DOMESTIC & MOTOR FUEL TANKS**

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NEW PROFITS FOR BUTANE DEALERS WITH THE NEW TEXOIL Butane-Propane DISPENSER



Is Butane business passing your door every day? Increasing use of LPG as motor truck fuel has opened a NEW avenue for profits for Butane dealers. TEXOIL Butane-Propane Dispensing Equipment will help you cash in on this new market. Many of the trucks that pass your place of business use LPG. Be ready for them!

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Sure, it costs money to get in this new LPG business but when you decide to install your equipment, be sure it is the BEST and the SAFEST! Only by having the finest dispensing equipment will you be certain that the installation will be completely satisfactory. Only safe, satisfactory equipment will be profitable to you. Your investment begins to work for you immediately.

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INCORPORATED
Formerly The ALAN W. BOWSER
COMPANY

1816 COCKRELL STREET
DALLAS 2, TEXAS
Telephone HUNter 2868



Bookkeeper Yvonne Bawdin has no office furniture to dodge in digging out references or replenishing supplies for her desk.

pane delivery trucks and two new service pickups. For the eight distribution points—Cut Bank, Browning, Chester, Conrad, Havre, Wolf Point, Plentywood and Malta—this makes a fleet of nine tank trucks (1275 to 1600 gallons) and eight service pickups, all operated on propane. Consignees and branch managers at these distribution points are supplied by rail.

The management is wakened to the growing use in its area of propane gas in restaurants and hospitals, in farm tractors and in oil well drilling equipment. But nearly 90% of the business now comes from farm home owners and domestic users just beyond the gas mains.

Included in the current plant expansion program which started in May are a 32 x 46-foot building at Havre providing warehouse, showroom and office, similar 32 x 36-foot plants at Chester and Conrad, a new bulk plant at Malta and the remodeling of the office and showroom at Cut Bank. Glacier Distributors buy pre-cut metal buildings on blueprint specifications, bolt them together and finish them on the inside.

At Cut Bank it's a handsome job. The office, run by Wes Swogger and

staff, where records and purchases are handled for all branches, is streamlined for efficiency.

The files have been recessed in the wall and an 8 x 12-foot fireproof vault has been installed. Recent purchases for the office include an IBM electric typewriter, an Underwood Sundstrand electric posting machine, two Monroe electric calculators and a complete set of steel desks.

Helping in the Cut Bank office are a bookkeeper and a man on inventories, shipping and receiving.

Growth of the organization the past four years has been pegged at a steady 20% annually—about the rate the company could get 30,000 gallon tanks to increase bulk storage.

Outlook ahead for Glacier Distributors in the propane business they at one time didn't want is a steady growth at the same rate that now keeps them hustling—and they are ready.

After seven years of using propane in their delivery trucks, Glacier Distributors, with a fleet of 18 vehicles on the roads of Northern Montana, are convinced that liquefied petroleum gas is a cheaper motor fuel than gasoline.

Wes Swogger, office manager at Cut Bank, looked up from his statistics. Mile for mile and hour for hour, propane and gasoline had cost about the same. But on the important matter of engine wear he referred to Manager Ed Skabo at the next desk whose work keeps him in the field most of the time.

Said Ed: "Three overhauls on gasoline to one on propane."

He cited numerous instances of heavy equipment along the High Line which had been operated for five years without overhaul. Also, says Manager Skabo, propane develops 12% more power.

Broiler Production Offers Big Propane Market

Production of broilers has shown phenomenal growth in a number of states, particularly in the Midwest. Illinois reports an increase from 2 million in 1935 to more than 20 million in 1952. Missouri has done even better—2 million to 22 million in 1951.

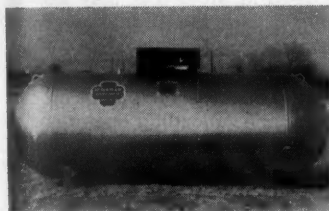
Taking the country as a whole, the increase has been from 43 million in 1935 to about 800 million in 1951. Most of those broilers were started with artificial heat. It makes a sizeable market for propane.

Products and Trade Publications

To secure further information on products or new publications, fill out the coupon and mail, indicating by number the items desired.

1. L. P. Gas Tank

A new model L. P. gas tank which features liquid withdrawal facilities for top and bottom withdrawal has been introduced to the market by McNamar Boiler Tank Co. The fitting arrangement is designed for ease in handling and more simplified installation. The fittings are so arranged that the filler valve, fixed



liquid level gauge, and float gauge are more readily accessible to the service men.

The vapor service line, pigtail, regulator, and expansion coil are assembled on the back side away from the fittings used on each filling operation. This new model tank also provides extra heavy legs and lifting lugs, as well as larger and heavier domes. A new quick-drying paint is used on the tank, providing a smooth hard surface.

The tank is available in an assortment of sizes of 100 gallons and larger.

McNamar Boiler & Tank Co.

2. "Dishwasher-in-a-Range"

In this combination, Cribben & Sexton, Inc., will present a completely automatic Universal gas range and an adaptation of the James mobile automatic dishwasher. Some of the attractions of the Universal range include single point ignition,



simmer-save burners, electric clock control with four-hour timer, chromium whirlpool broiler pan and the charco-grille radiant broiling screen.

The dishwasher requires no wiring, plumbing or cabinet work. Besides absence of installation costs, it offers water and fuel economy by creating its own proper water temperature and water pressure, independent of local conditions.

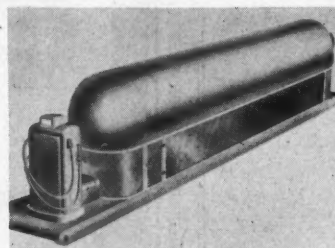
The "Dishwasher-in-a-Range" will be available in April.

Cribben & Sexton, Inc.

3. Filling Station

A completely packaged L. P. gas filling station has been announced by the J. B. Beaird Co., Inc. The filling station includes a 999 gallon pressure storage tank, metering dispenser, pump, and all necessary hose, piping, valves, and fittings.

A formed screen of expanded



metal, encloses the supports. Fittings for filling the tank are enclosed in a steel protective hood.

This entire filling station is completely assembled at the factory on a steel skid base and finished in white enamel.

J. B. Beaird Co., Inc.



READERS' SERVICE COUPON

Just fill in this coupon for Products information and copies of new publications, and mail to

BUTANE-PROPANE NEWS, 198 So. Alvarado St., Los Angeles 4, Calif.

2-53 Fill in numbers of items in which you are interested.

No. No. No. No.
No. No. No. No.

NAME AND TITLE

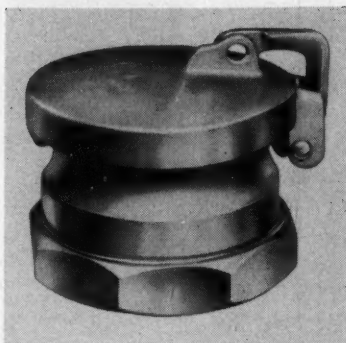
FIRM'S NAME

ADDRESS

CITY ZONE STATE

4. Fill Cap

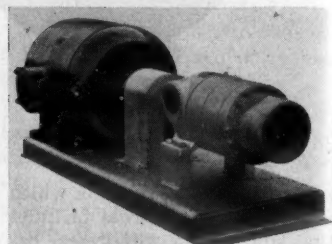
A new all-brass, full-flow fill cap, which is water-tight and easy to operate, is now being produced by the Ever-tite Coupling Co. Inc. The No. 97 Ever-tite cap clamps on easily, without the necessity of twisting threads of lugs. A removable, durable gasket is compressed against the sealing surfaces of the cap and adapter by just closing the handle. It operates the same as Ever-tite couplings, except only one handle is



used. To remove the gasket, just lower the handle. The cap can be padlocked when closed. Provision is also made for the insertion of an identification tag.

The cap can be used with or without a manhole-type flush box, and is designed for use with a new Ever-tite coupler.

Ever-tite Coupling Co. Inc.



5. Pump Inlet Cover

The Smith Precision Products Co., announces that the 150-GPM Model MC-4 pump is now available with a special inlet cover threaded 4" standard pipe size, as standard equipment. The 100-GPM MC-3 pump and the 50-GPM MC-2 unit may also be obtained with the 4" inlet cover on special order.

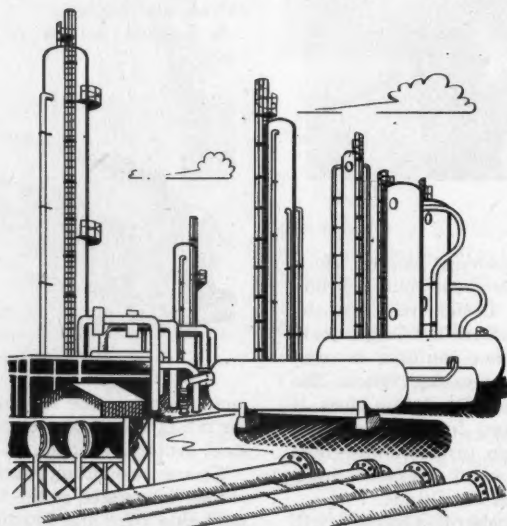
The new cover has been especially designed for use on pumps in fast loading and unloading operations as in refineries, where the available pump inlet head may be low. A great effort has been made to design this cover so as to present the lowest possible value of resistance-to-flow within the pump itself, from pipe threads to teeth of pumping gears. Units so equipped have their internal resistance reduced to the point where pumps perform as if the storage tanks were mounted 2 ft. higher than they are.

The manufacturer recommends that the 4" inlet cover be specified wherever the calculated resistance-to-flow of the pump inlet line is greater than the height between the pump level and the level of the bottom of the tank, and butane or LPG mix containing a large percentage of butane is being handled. In order to obtain the advantage of this special cover, pumps must be run in counter-clockwise direction of rotation only. Use of this cover increases pump life and speeds delivery under difficult conditions, and these advantages far outweigh any disadvantage connected with single-direction rotation.

The special 4" inlet cover is also available at a reasonable exchange cost for pump users having older-type units equipped with standard covers. *Smith Precision Products Co.*

CITIES SERVICE

LIQUEFIED PETROLEUM GAS



... in L. P. gas also Cities Service means Good Service

- A DEPENDABLE SOURCE
- UNIFORM PRODUCTS
- A CAPABLE SUPPLIER
- TWENTY-FIVE YEARS EXPERIENCE

CITIES SERVICE OIL CO.

DELAWARE

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NEW **TAPPAN** Meadowbrook

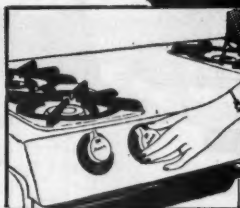
means
NEW LP Sales
NEW LP Profits
for you!

Everything about the Tappan Meadowbrook seems to almost shout "new". It's *new* styling, *new* beauty, *new* convenience, *new* dependability.

For you, it's a *new* edge on competition. It's something new, fine and profitable for you to sell. It's a sales opportunity you should grasp now, while it's still new and way ahead!



Tappan ranges require minimum service. Tappan customers are satisfied users. That builds a constant LP volume for you. Your Tappan representative will be glad to give you full details and show you promotion helps on the newest Tappan range—the Meadowbrook. Call him.



Line-of-sight valve panel with valve handles clearly marked "Front" and "Rear".



Storage compartment with drop door makes everything more accessible—saves steps.

THE TAPPAN STOVE COMPANY
MANSFIELD, OHIO

Product Information

6. Dryer Temperature Control

Hamilton Manufacturing Co. has a new temperature control for its automatic clothes dryers, which shows temperature settings by types of fabrics to be dried rather than the conventional "high, medium, low" brackets. The new control is called "Fabri-Dial" and will be a standard feature on all Hamilton dryers now

in production. It calibrates drying temperatures from a high setting of "cotton" to a low "synthetic". The company has a dealer service plan which calls for the distribution of large quantities of Fabri-Dials to Hamilton dealers so that floor and inventory stocks can be modified at once. Additional supplies of the new temperature control are provided for dealers without cost, and are being used to update recently sold dryers.

The company also has announced that it is entering the automatic washer market with its new agitator

type model in order to provide its dealers and distributors with matched units, according to E. P. Hamilton, president. Production is scheduled to start in May.

Hamilton Manufacturing Co.

7. Colored Range Handles

The new 1953 Caloric ranges feature handles in a choice of 12 colors. This enables the housewife to make her range harmonize with any kitchen color scheme by simply snapping on handles of the color selected.

The Caloric range also features a



streamlined backguard which is higher, giving added protection to walls and woodwork. The automatic clock control and timer are elevated out of the heat zone and are easy to reach and set. Vents provide increased circulation for cooler cooking. Lower position of fluorescent lamp focuses full illumination on cooking surface, and timing and regular outlets are provided at easy-to-reach locations.

Caloric Stove Corp.

8. Refrigerator Price Drop

The price schedule for the expanded line of Servel household refrigerators includes reductions ranging up to \$90 per unit for gas and electric absorption models for 1953.

President Paul Jones states that production savings have made possible some substantial price cuts in spite of the fact that the new models contain many improvements not incorporated in their 1952 counterparts. He added that Servel will continue its 10-year warranty policy on its gas and electric absorption models.

Servel Inc.

Enterprise Ranges
AGAIN THE YEAR'S BEST BUY
AS IN YEARS GONE BY
1958-1953

Model 362385-"CP"
Automatic-Clock Controlled



*You just can't beat
Selling Features like these!*

Fully automatic oven control on CP models. Clock control turns oven on and off at exact time required.

Waist high broiler permits more efficient baking and broiling at same time. Entire broiler assembly easily removed for cleaning in sink. Oversize tank type oven uses largest roaster. High efficiency oven burner for better baking and lower fuel bills. Oven bottom easily removed for cleaning.

Top burners are cast iron with aluminum alloy heads. Two giant and two standard size. All guaranteed for life of range.

Heavy steel chassis, including base, welded together into one strong unit and finished in lifetime porcelain — will not rust.

A wide selection of sizes and styles. Thirty different gas models . . . fourteen different electric styles from which to choose.

See your P & B Distributor now . . . or write

PHILLIPS & BUTTORFF MANUFACTURING COMPANY
NASHVILLE, TENNESSEE



Model 162364-"CP"
Automatic with Time Reminder



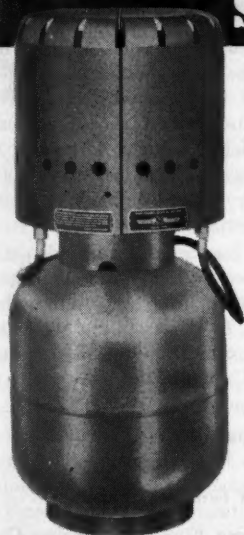
Model 5130



Model 5120

Manufacturers of

SQUIBB SPORTSMAN'S STOVE



For Cooking and Heating Indoors and Out!
A "PLUS" SALES ITEM for LP-G DEALERS!
Available with or without ICC Cylinders

One of the most practical cooking and heating units for sportsmen and for those who work out of doors. When closed it's a heater. Open it's a two-burner cook stove. Made of sheet steel and nickle-plated. Mounted on a 20-lb. ICC cylinder, stove stands 28" high. Weight without fuel 37 lbs. Equipped with Fisher "Little Joe" Regulator.



Special Squibb burners swing out for cooking as stove is opened. Each burner has 10,000 BTU output.

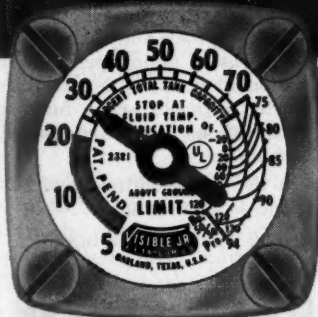


Stove mounts on cylinder for outdoor use and on tripod for use in closed area. Mounts with two wing nuts.

Exclusive Distributors of

VISIBLE

MAGNETIC FLOAT GAUGES



For LP-Gas and Anhydrous Ammonia

The "Master" Visible Gauge is designed for both LP-Gas and Anhydrous Ammonia. Counter-balanced accurately for positive operation in low specific gravity liquids. Full 8-inch dial face. Heavy aluminum corrosion resistant head plate. Long 6 1/4-inch float for maximum buoyancy.

There is a complete range of Visible Gauges for LP-Gas. Die-cast gauge head is of zinc alloy or aluminum alloy. Head easily withstands pressures in excess of 5,000 lbs. per square inch. Break resistant plexiglas crystal. Large, easy-to-read dial face. Alnico magnetic pointer and drive. Spring steel float rod.

For the South and Southwest —

QUALITY LP-G EQUIPMENT

We carry warehouse stocks and are exclusive factory representatives in the South and Southwest for —

- ★ **FISHER GOVERNOR COMPANY**
Regulators and Accessories
- ★ **SELWYN-LANDERS COMPANY**
LP-Gas Tank Valves and Fittings

Warehouse stocks also available on the following:

- ★ LP-G Hose
- ★ Hose Couplings
- ★ Bottle, Truck and Bulk Plant Pumps
- ★ Liquid and Vapor Meters
- ★ Copper Tubing and Flared Fittings
- ★ Gas Cocks and Stove Connectors
- ★ Pipe Sealing Compounds
- ★ LP-G Cylinders

YOUR COMPLETE LP-G EQUIPMENT SUPPLIER

Immediate Delivery from Our Dallas or Memphis Warehouse



INCORPORATED

2545 SUMMER AVE.
MEMPHIS, TENNESSEE

1213 S. AKARD ST.
DALLAS, TEXAS

9. Cable Clamps

A non-inflammable plastic cable clamp has been announced by Holub Industries, Inc. It is made of Saran, a tough, strong thermoplastic material which also has excellent electrical and thermal properties.

Other important characteristics are its inertness to fungicidal attack, ability to withstand changes in atmospheric conditions and resistance to corrosion or sweating. Saran is not affected by prolonged immersion in water and remains stable when ex-

posed to mild acids, chemicals, oil, etc. It is non-toxic and has excellent abrasion resistance. Reduction of weight is claimed as another feature.

Because Saran is a pliable material, this clamp can be opened to any dimension for easy sliding over wires, cable, pipe or tubing. Edges are rounded to prevent damage to insulation, etc. Being resilient, the plastic clamp eliminates the need for lock washers in many instances.

Saran clamps are made in 17 stock sizes, ranging from 1/8-in. to 1 1/4-in.

Holub Industries, Inc.

New Publications

10. L. P. Gas Packaged Products

A new booklet on packaging of products has been published by the J. B. Beard Co. It shows manufacturers how they can find bigger markets for such products as power units, process equipment, controls, etc., by having them completely packaged into composite products.

The booklet describes Beard's experience in developing packaged gas compressor plants, farm dehydration plants, L. P. gas filling stations, and anhydrous ammonia dispensing stations. Copies of the booklet are available upon request.

J. B. Beard Co.

11. Pot Furnaces

Eclipse Fuel Engineering Co. has released Bulletin No. D-50 for distribution. This bulletin illustrates and describes in detail the Eclipse rectangular pot furnace, the circular salt pot furnace and the atmospheric pot furnace, giving pertinent information about the optional equipment for the furnaces and a full page of specifications and dimensions for each model.

A list of the addresses of 34 sales offices is also included.

Eclipse Fuel Engineering Co.


LPG Kansas Sales Up More Than Million Dollars

One of the most rapidly growing segments of the Kansas petroleum industry is liquefied petroleum gas distribution. The butane and propane in the silvery tanks of many farmyards represent the principal products used.

The value of these and other LPG products, including natural gasoline last year, as reported by the State Geological Survey of the University of Kansas, Lawrence, was \$10,806,977. This is an increase of more than a million dollars in one year. In five years production has increased 75%.

In Kansas, where production problems have been less complex, no raw natural gasoline and LPG is being wasted, as in some other parts of the country. Most of the production comes from seven plants in Kearny, Grant, Haskell and Seward counties in the Hugoton, Kan., gas field. Natural gasoline is also processed in Cowley, Greenwood, Reno, Sedgewick, Rush, Barton and Kingman counties.

BUTANE-PROPANE News



Underground STORAGE

*Peter, Peter — LPG Dealer
Had some gas
But couldn't keep'er
So he had us
Dig a well and
Told the *(1 1/2 to 1)
To go to . . . Well —*

Underground Storage Is the Answer

* RATIO

**Don't Delay Another Day
Contact G. H. "Smoky" Billue**

**SECURITY UNDERGROUND
STORAGE COMPANY**

615 Sunset Drive • Phone 24067 • Wichita Falls, Texas

Heat Generating Systems Designed for Dehydration

FOR a number of years Ransome Co., Emeryville, Calif., has been making "heat generating systems" designed to serve many applications requiring the use of circulated warm or hot air. Such applications include the dehydration of grains, fruits and vegetables.

The picture shows two standard models, a "1/2ADS-35 system" mounted on top of a "1ADS-40 system." These two standard systems are often stacked as shown when used at cotton gins where two "systems" are usually required, one for heating air for the main dryer and the other for heating air passing to the recleaner.

The outlet duct of a "system" is connected to the blower inlet. Adaptors can be furnished of the proper size to connect the duct on the system to any size blower inlet.

Controls Mounted on Panels

The manifold is mounted on a sheet metal panel so designed that the panel can be attached to either the left or right side of cylindrical fire box section. All of the controls except a temperature controller are also mounted on the sheet metal panel. The standard controls include two main burner solenoids, one pilot solenoid, a 100% safety shut-off device, an air-flow switch and a high temperature safety shut-off controller.

The electrical system includes a toggle switch and a 3-way switch which are also mounted on the panel.

Gas flow to each solenoid can be controlled by an individual manual valve. A strainer is always installed in the pilot line and strainers are recommended for the main burner line to protect the respective solenoids.

All of the wiring is made up as far as possible in the Ransome shop, using colored wire in accord with a wiring diagram furnished with each system and the wire housed in BX. This simplifies the installation and assures proper performance.

The use of two solenoids on the main burner gas line enables the op-

erator to adjust the manual valves for a high-low flame type of operation, that is, one solenoid manual valve combination can be set for the maintenance of a minimum flame and the other solenoid so wired that it

opens or closes upon demand of a temperature controller.

Where extremely close temperature control is required a motorized valve is used to replace the "high fire" solenoid in order to obtain a modulated type of operation.

The 100% safety control stops the flow of gas to the main burner and pilot in case the pilot becomes extinguished.

The air-flow switch protects the fan since gas cannot flow to the main



FIG. 190
VIKING LP-GAS PUMP
WITH MECHANICAL
SEAL. 5 TO 55 GPM
SIZES.

The complete line of Viking power driven LP-gas pumps can now be furnished with either mechanical seal or metallic packing. Both available in the complete range of sizes 5 to 55 gpm. 37 models from which to choose. Convert your present pump to this new mechanical seal type. Ask for details.



For complete information, send for free bulletin 2303B and supplement sheet SP312 today.



VIKING PUMP COMPANY
Cedar Falls, Iowa

burner unless the blower is in operation.

The high temperature control automatically stops the flow of gas to the main burner if, for any reason, the temperature of the air stream leaving the system reaches a predetermined point. In cotton gins this arrangement cuts the flow of gas off to the main burner in case the forward duct becomes totally or partially plugged with cotton, thereby providing an essential safety feature.

Adjustable legs are provided to

facilitate the connection with the dimensions of the blower to be used.

The design of the fire box causes the cold air being drawn into the

TABLE 1

System Model	NATURAL GAS		L. P. GAS		
	1 psi	5 psi	5 psi	10 psi	20 psi
½ADS-35	400,000	850,000	1,350,000	1,900,000	2,300,000
1ADS-40	940,000	2,800,000	435,000	780,000	1,100,000



DEPEND ON SUNRAY LP GASES When Your Needs are GREATEST...

When the bottom drops out of the thermometer and your customers are crying for more LP Gas, your worries are few if you are a customer of SUNRAY. SUNRAY customers know they can get the LP Gas they need from their usual dependable source. SUNRAY'S plant locations assure you of fast service no matter where you are.

WRITE, PHONE or WIRE . . .
Sales Department

SUNRAY OIL CORPORATION

General Office • First National Bldg.

5th & BOSTON

TULSA 3, OKLAHOMA

"system" to keep the outer shell of the fire box section cool.

Several sizes of Ransome "systems" are available. The capacities in Btu per hour for natural and L. P. gas at various pressures for the systems illustrated are given in Table 1.

Henderson, Nev., Will Have Propane Town Plant

The California-Pacific Utilities Co., San Francisco, recently started installation of LPG town plants in Henderson, Nev.

At present, they have installed only a few thousand feet of 2- and 4-in. mains to one new subdivision serving 81 homes, but plans call for the installation early this year of mains to serve another subdivision of 364 homes as well as additional mains in the existing townsite.

These customers will be served with propane vapor with a Btu content of 2525. The company hopes to have a total of 500 customers in Henderson by the end of this year, according to A. B. Gilbertson, property engineer of the company.

J. A. Ward is president of California-Pacific Utilities Co. which operates numerous LPG town plants in Oregon and California. Headquarters are in San Francisco.

American Butane Co. Builds New Bulk Plant In California

A new 18 by 30 foot office building is being built at Santa Susana, Calif., by the American Butane Co. Trent Meredith, Oxnard contractor, is doing the work.

Joe King, manager, said the building, constructed of cement blocks, will provide about 300 square feet of display space, and an office. The permanent building will take the place of a small frame structure which the company has used on the same site for the last few years.

Mr. King said the company also is increasing its gas storage capacity in the Simi Valley from 4000 to 10,000 gallons.

Propane Plays Part In Pollinating Plan

A Minnesota company has come up with a new propane-powered machine that may very well make the old-fashioned honey bee obsolete.

Known as the "Mechanical Bee", the machine, upon which patents are pending, applies heat and wind to standing alfalfa for the purpose of pollinating. The company anticipates leasing machines out to several hundred alfalfa seed growers in the Great



The "Mechanical Bee" attached to a tractor and ready for operation. At right is Dale Hvistendahl, president of the company. Robert Soderholm is on the tractor.

Plains, Rocky Mountain, and West Coast regions.

Results of tests have been outstanding. The highest yield achieved so far with the Mechanical Bee is 750 lbs. of alfalfa seed per acre. The season's average yield over 16 pollinated farms in a dry area was over 100 lbs. per acre. The average in the same territory before using the bee machine was less than 30 lbs.

Example Proves Point

One example is given by the experiences of a Minnesota farmer, Ray Humphries, of Hadley, whose fields realized 170 lbs. per acre on an average while the best other field in the county could manage only 15 lbs.

In another experiment, a South Dakota farmer pollinated 16 acres in a 40-acre field. This marked-out patch produced over 100 lbs. per acre while the balance of the field went at 30 lbs. And this was just an unsprayed, dry, hay field while sprayed fields in the same county average 250 lbs. when machine-pollinated by the Mechanical Bee.

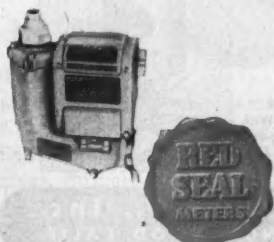
Each 12-ft. swath machine will pollinate 1500 acres per season at the rate of four acres per hour. Average consumption of propane is 5 lbs. per acre or a total of 7500 lbs. per ma-



... when accuracy is so easy
with Red Seal Meters.

No need to rely on guesswork or inaccurate gauges when filling customers' tanks! Do it the easy, accurate way, with this dependable Red Seal LP-gas meter. Tells at a glance exactly how many gallons you've delivered, and permits fast, dependable fills. With a Print-O-Meter register, it helps build business by giving your customers positive, meter-printed proof of full delivery.

The Red Seal is a complete, approved truck metering system in one package. Famous for simplicity, sustained accuracy, and low maintenance costs. Designed specifically for LP-gas pressures. More in use than any other make. Ask for Bulletin 779-L.



Canadian Factory
Toronto 14, Ont.

8E-C

NEPTUNE METER COMPANY • 50 WEST 50TH STREET
NEW YORK 20, N. Y.

Branches
Atlanta • Boston • Chicago • Dallas • Denver
Los Angeles • Louisville • No. Kansas City, Mo.
San Francisco • Portland, Ore.

chine per year. Colder or warmer weather during pollination proportionately increases or decreases this amount. Standard 100 lb. tanks are carried on the tractor, or the machine can be run from the same propane tank as the tractor.

The burner of the machine is a regular bunsen burner type of propane weed burner, two being used in cold weather. These are directed through a heat exchanger directly into the air stream intake, from which hot air goes through a special high

temperature fan. Hot air of about 170° hits the blossoms immediately after the machine makes pollen available and spreads pollen throughout the pollinating chamber and onto other blossoms, thus cross-pollinating the alfalfa.

South Dakota State College and the University of Minnesota will run extensive tests on the machine this summer.

The Mechanical Bee Corp. is located in Worthington, Minn. Dale Hvistendahl is president.

Warren Petroleum Corp. Buys East Texas LPG Plant

Warren Petroleum Corp., Tulsa, has negotiated for the purchase of a majority of the outstanding stock of Gregg-Tex Gasoline Corp., Longview, Texas, according to an announcement by W. K. Warren, chairman, and James E. Allison, president. The price paid for the stock was not announced.

The Gregg-Tex Corp., one of the pioneer natural gasoline manufacturers in the East Texas field, owns a plant having a daily average production of approximately 130,000 gallons of natural gasoline and L. P. gas, making it one of the largest in the field.

The corporation also has a substantial interest in several producing gas and distillate wells in the Willow Springs and North Lansing fields in Harrison and Gregg counties of East Texas, as well as working interests in several producing oil wells in Jack, Young and Pecos counties in West Texas.

The Gregg-Tex natural gasoline plant is only seven miles from Warren's large Gladewater plant and already is connected to that corporation's natural gasoline products pipeline serving several plants in the East Texas field.

"The proximity of the Gregg-Tex plant to our Gladewater plant," Warren officials said, "will afford an opportunity for economical administration of both plants. No change is contemplated, however, in the operating personnel at the newly acquired plant."

Demonstration Shows Meal For Four Costs Only 1/2 Cent

The advantages of modern automatic gas cooking were demonstrated recently to more than 2000 people in DeRidder, La., in a display put on jointly by local LPG companies, appliance dealers, and the giant United Gas Co., of Shreveport.

The theme of the cooking demonstration was the small cost of gas required for cooking. Menu cards showing a complete dinner for four were on display at all appliance booths and visitors were asked to guess the cost of the gas required to prepare the meal. Later, the dinner was cooked as a meter recorded the volume of gas consumed. This turned out to be about 9 cu. ft. which, computed at the local rate, set the cost of the meal's preparation at slightly over one-half cent, far less than most guesses.

NEW *Mutual* INDUSTRIAL HEATER PROVIDES INSTANT MOVABLE HEAT

11,000 B.T.U.

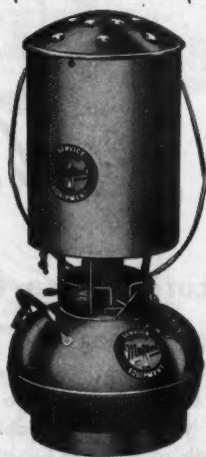


● Korea has taught us that men who work out-of-doors in all kinds of weather perform their jobs more efficiently if they are given an opportunity to warm their hands and feet occasionally.

Belief in this basic principle has led Mutual Liquid Gas Equipment Co. to design and develop an entirely new Portable Industrial Heater to make use of the intense heat developed by LP-Gas (Propane).

Mutual's new Portable Industrial Heater is exceptionally efficient for Telephone Company aerial and ground tents, construction and field survey shelters, small army type field tents, brooders, milking sheds and all small farm and other buildings where clean, quick, odorless, smokeless, portable heat is needed.

No pumping or priming is required... just one valve to turn and then light for quick, comforting heat. Mutual Industrial Heaters are safe and easy to use... heavy flat steel bottom prevents tipping over... no annoying fumes, a distinct advantage when heat is needed in small confined areas.



Heating unit is interchangeable with Mutual's No. 2 and No. 3 furnace, or you can attach it to Mutual's No. 6, No. 11 or No. 21 cylinders.

Now you can have comfortable warmth wherever you go with Mutual's small-compact Portable Industrial Heater. Write today for more complete information.

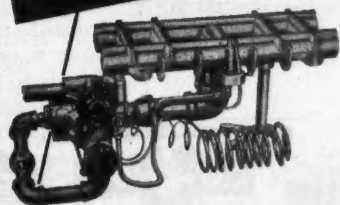


BENCH TYPE
May Be Used With
Ordinary Propane
Cylinder With P.O.L.
Fitting On Hose.



LIQUID GAS EQUIPMENT CO., Inc.
3600 WEST IMPERIAL HIGHWAY, INGLEWOOD, CALIF.

TOP PERFORMANCE



Model SP-45 Blue Flame Gas Log Conversion Range Burner fits any firebox, burns any type of gas. Quiet, efficient, automatic.

...and **TOP PROFITS!** You can increase your profits and insure customer satisfaction by selling Heatbath precision-built conversion gas burners — the finest available anywhere. Complete line for bungalow, combination and dual oven ranges and space heaters. Thermostatically controlled. Utility approved.

Write for full details, specifications and dealer possibilities now!

HEATBATH

APPLIANCES

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P. O. Box 78

Springfield, Mass.



PROPANE TRUCK TANKS

FOR ALL DELIVERY NEEDS

In streamline (illustrated) and walkway types, 1,181 gal. to 1,700 gal. water capacities. Constructed in accordance with A.S.M.E. Code, par. U-69, 200# w.p., or A.S.M.E. Code, 1950 edition, 250# w.p. Mounted on your chassis complete with valves, fittings, pump, hoses. Unit ready for immediate use when picked up. Write for details.

Also 500 gal. and 1,000 gal. Domestic Tanks
(Salem System)

Storage Tanks
Up to 8,000 gals.



McNAMAR AND CROWLEY, Inc.
SALEM 5, ILLINOIS

"Make 'Em Thirsty"

For Today's LPG Appliances
If You Want to Lick the Competition

By Gordon Jones
Sales Manager
United Gas Improvement Co.
Philadelphia

MOST of my remarks* will be confined to ranges—and the cooking load—for two or three reasons. First, the limitation of space; second, because I still consider cooking our most universal basic load; and third, it's the area where we are most subject to attack by competition. However, what I have to say is equally applicable to our entire business.

I should establish for you the source of the title — "Make 'Em Thirsty." It comes from the adage, "You can lead a horse to water but you can't make him drink." Much of the concern I hear expressed today about the inroads of our competition comes into being as a result of the fact that we have not recognized the absolute necessity of making our customers thirsty enough to use gas fuel or to buy modern, low cost, high efficiency gas appliances.

There are three groups of people whom we must make thirsty and upon whose thirst the success of your business and mine depends. Those three groups are:

1. The customer
2. The salesman
3. The manufacturer.

Your immediate reaction to this listing may be that I have arranged them backwards . . . that first we

* Presented before last fall's meeting of the Northeastern District, LPGA.



Jeanne Crain, 20th Century-Fox star, typifies the customer's satisfaction with a modern gas range.

should have the manufacturer making the appliance, then the salesman selling it and finally the customer using it. However, I have purposely listed them in the order in which I did because I want you to agree with me, right in the beginning, that, "Nothing ever happens in business until a sale is made." From that point on, the wheels of industry begin to turn and things are made to satisfy the thirst that the ultimate purchaser has developed.

Let's look critically at this customer of ours. In total he numbers about 31,000,000 when you include the utility company customers and the LPG customers. This is the highest total ever registered, and indicates that the combined industries have been doing a pretty good job of creating a thirst for the best in mod-

ern living and satisfying it with the best in modern appliances.

The tremendous impetus that has been given to this growth by your own LPG industry has been the subject of much talk and writing, and I have had the feeling at times that we, in the utility business, could well afford to rub shoulders a little closer with you so that some of your enthusiasm will rub off on us.

These growth records are facts, and yet equally factual is the growth in customers and in sales of appliances by the one common competitor which both you and I have. I submit to you that we have been responsible for permitting many gains by our competitors because we have not energetically and enthusiastically made our customers thirsty enough for gas. We have permitted our competition

to create and satisfy our customers' thirst with appliances and a fuel that are not as well equipped to satisfy that thirst as are ours.

Let me give you a few examples of what I mean:

1. We have the fastest cooking fuel, and yet our competition uses speed as one of its advantages . . . and either the customers believe it, or speed is not as important as you and I think it is.

2. Coolness is not one of their advantages any more than it is ours, and yet surveys show that many, many people have bought electric because they believed it would make their kitchens more comfortable.

3. We hear a lot about the 200 or more Btu per hour consumed by the pilot on a modern gas range, and that's made to sound like the heat of hell's fire itself. And yet each of us is radiating about 390 Btu's per person per hour. A television set radiates 1023 Btu's per hour, and yet I have never heard anybody complain about their television set being too hot. If the public has had their thirst agitated sufficiently for the end result of the use, a few Btu's more or less will not affect their habits.

4. Let's look at the subject of cleanliness. Starting with the fact that the fuel itself is no part of cleanliness, ask yourself a few questions. Is broiling with an open door clean? Is burning off top units to get rid of spillovers an indication of cleanliness? Isn't it a lot cleaner to take all parts, including the burners, over to the kitchen sink and wash them? And yet our competition uses "cleanliness" to create a thirst for their product.

Tell Them Your Story

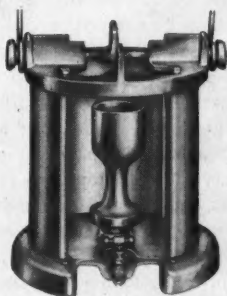
I know these things I am saying are as well known to you as they are to me. But a sincere analysis would seem to indicate that we need to tell them more often, more aggressively, to more of our customers, in more ways than we have been doing. Without question we have in today's gas range the cooking appliance that will outperform any range, in any kitchen, at any price, at any time. Let's be sure our customers know it.

You may be interested in two new campaigns along this line that our companies are now beginning to use. We believe that people generally, as

a result of the flood of advertising, think that more people cook electrically than really do. So we have developed a campaign with the theme—"Every 4½ seconds somebody buys a modern gas range" . . . and we can prove it with the national figures on an eight-hour sales day. The second promotion hits home in these days of high costs and high taxes . . . it's an economy theme, "Why Pay More?" when gas gives you cleanest cooking, or fastest cooking, or one of our other advantages. These two themes are now beginning to appear in all media.

I want to leave one other thought with you about the thirst of the customer. Let's forget price and the other "nuts and bolts" stories and concentrate on the results . . . what the appliance will do. It's surprising the number of people who still don't know that a modern gas range will do all things automatically. Sell the result.

Let's turn now to the thirst of the salesman. Sometimes I wonder if the salesman isn't the forgotten man in the gas industry. He is your most important employee. Make him think so.



Here's Year-Round Sales Booster . . .

RANSOME P-2S UTILITY FURNACE

Sells To
Telephone companies
Utilities
Plumbers
Roofing contractors
Machine shops
Industrial plants
Painters
Paper hangers

Used For
Melting paraffine for wire wrapping
Heating asphalt for patching jobs
Melting lead
Melting babbitt
Melting glue
Heating water
Space heating

YOU PROFIT 3 WAYS — There's a good margin on initial sales; then users buy LP-Gas the year-round, usually in small containers that gross ⅓ to ½ more than bulk gas. RANSOME P-2S furnace users quickly become prospects for other industrial equipment using LP-Gas; also for home uses.

POWERFUL SELLING POINTS — Like all RANSOME torches and furnaces, the P-2S burns clean, safe, quick-starting LP-Gas—no pouring, pumping or priming; no spitting or flashing flame; no fumes or soot. Operates 6 hrs. on 1 gal. at 2# pressure. Burner is non-clogging. Maintains steady flame even in high winds; heats and melts quickly. Available with space-heating hood or top shield.



Why not stock the year-round, volume-building RANSOME line NOW. It's a wonderful sales fill-in. Write TODAY for price lists, discounts and catalog.

RANSOME COMPANY

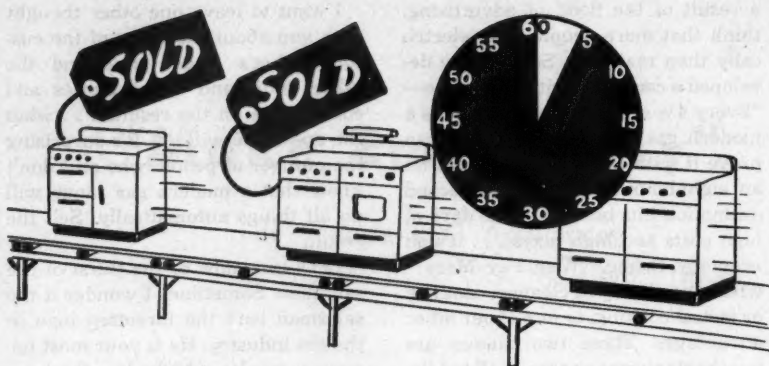
Designing & Constructing Engineers

19

ROOM 88, 4030 HOLLIS ST.

EMERYVILLE, CALIFORNIA

Ransome



"Every 4 1/2 seconds somebody buys a modern gas range."

Educate him to understand that on his broad shoulders rests the future of this gas industry, and then train him so he can carry that responsibility.

I'm sure that neither you nor I would haphazardly choose an inferior grade man to do our service work, or to take care of the engineering and planning to see that gas service is ready for our customers. And yet all of that preparatory work is wasted time and effort unless the salesman has convinced the customer that gas is the preferred fuel. He is your future . . . and he, too, has a thirst that can be created only by the feeling that he is more than just another house-to-house peddler . . . he's a tremendously important part of a highly developed organization, dedicated to making home-making easier and industrial advancement possible. Recognizing his importance to you, I know it isn't necessary to remind you that his thirst for *your* future can be satisfied only by adequately compensating him in the *present*.

The third group of people we have to make thirsty are the manufacturers, and it is extremely important that we do a lot of deep thinking today about their thirst. Down through the history of our industry we have

been favored with a strong, energetic group of promotionally-minded manufacturers. They have given adequate evidence of their interest in the gas business, and they have co-operated effectively with the utility companies and the LPG industry to produce appliances that will adequately satisfy any customer's demand. Yet you and I hear a lot about the gas industry being out-advertised and out-promoted by our competition. We are prone to blame the manufacturers for not having an inexhaustible supply of money to do this promotion for us, but we must agree that the money the gas appliance manufacturer has for any use comes from the price you pay him for that appliance.

One of the primary strengths of our competition is that they are not afraid to charge for their products. The records of 1951 speak volumes. In the gas range business, only 30% sold at prices higher than \$200, while 60% of the electric ranges were above that figure, and 31% of the electrics were in excess of \$300. Oh, yes, 6.5% of the gas ranges sold were over \$300.

Let's do a little figuring. If, instead of chiseling the manufacturer for the last nickel, you would suggest that he

charge \$4 or \$5 more for each gas range, the manufacturers would have somewhere in the neighborhood of \$10,000,000 to \$15,000,000 additional to spend with you and for you to help create a thirst by your customers. Equally substantial amounts would be available for the promotion of other gas appliances. These figures become startling as they mount, and I am sure you will agree with me that no gas range, water heater, or other gas appliance sale would be lost because the price might be \$5 higher than at present. Let's try to disassociate "low price" and "gas" and sell up to the market that our competition has proven to be here.

Along these lines a promotion that is being used in eastern Pennsylvania* is important for two reasons; first, it is a strong aggressive promotion to create a thirst for gas and modern gas appliances, and second, it has brought together in that area, all of the gas utilities and a large number of the LPG suppliers and dealers in one concerted promotional effort. We in eastern Pennsylvania think it is the finest promotion we ever have had in that area.

As an indication of the success of the promotion, we have had a great number of LPG dealers, utilities, and appliance dealers, who have further augmented its impetus by using the same theme and the same advertising for their local use. Many billboards have been posted by individual dealers, which were not paid for out of our funds. Supporting newspaper advertisements by dealers have increased tremendously the impact of the entire promotion. Yes, we in eastern Pennsylvania, are very proud of the success of the first year of our cooperative, coordinated promotion.

There is one thing, however, that I particularly want to call to your attention about it. Its strength rests in the fact that the money spent was in addition to the money that would have been spent by those cooperating through their regular advertising channels.

It has one other very important result to me, and that is that for the first time in this area, utilities and LPG dealers have combined their efforts to tell a strong, aggressive gas story. We are using this promotion

1951 COMPARISON OF RANGE PRICES

SALES PRICE	PER CENT OF RANGES SOLD
OVER GAS \$200. ELEC.	30% 60%
OVER GAS \$300. ELEC.	6.5% 31%

*A detailed report on this promotion will be found in BPN, Oct. 1952, page 82.

and our individual promotions to create a bigger thirst in our customers than they ever have had before for gas fuel, regardless of its delivery procedure, and for modern gas appliances. Its success has been so recognized by all those who are cooperating this year that we have already had our first meeting to lay plans for an expanded program in 1953, in which we hope to include a far greater number of manufacturers and suppliers, and also a greater number of L. P. gas dealers.

Oklahoma Dealers Resist Insurance Requirements

By O. D. Hall

The Oklahoma Liquefied Petroleum Gas Board, with advisory powers only, met in Oklahoma City Jan. 6 and adopted a resolution recommending that State Fire Marshal W. J. Marshall withhold any action attempting to enforce an order which would require LPG dealers to take out products liability insurance to cover damage to any of their customers. Many of the dealers already carry such insurance.

The state fire marshal, administrator of the Oklahoma LPG laws, acting in his official capacity, had issued the order requiring the LPG dealers of Oklahoma who had not already done so to take out such insurance.

Some of the dealers, claiming that the cost of maintaining such insurance would be burdensome and confiscatory, particularly on small dealers, filed suit in district court at Oklahoma City to enjoin the state fire marshal from attempting to enforce the insurance requirements and obtained a temporary injunction.

Byron L. Bristow, Oklahoma City, temporary president of the Oklahoma Butane Gas Dealers' Association, a sponsor of the litigation, claims that the insurance is so high that "it would break the average dealer." The district court suit questions the state fire marshal's authority to make or enforce such an order.

The fire marshal says that in making the order he was only doing his official duty in carrying out an interpretation of the law given in an opinion by the state attorney general of Oklahoma. A resolution is pending in the Oklahoma state legislature, which convened Jan. 6, to suspend any action to enforce the requirement to take out the LPG products insurance requirement. It is understood that a bill will be introduced in the legislature to take enforcement of Oklahoma liquefied petro-


leum gas laws and regulation from control of the state fire marshal's office and place it in the hands of a special board upon which the LPG industry will have representation.

Underground Storage Safety Standards Set

Basic safety standards for the construction, testing and fitting of underground LPG storage installations have been developed by the Natural Gasoline Association of America. They are designed to assist national

and state governmental bodies and insurance companies in writing regulations for such facilities.

A special NGAA committee headed by Frank Perry, Cities Service Oil Co., Bartlesville, Okla., established the tentative standards. Other members of the group were Joe Wood, Skelly Oil Co., Pawhuska, Okla.; Paul Tucker, Phillips Petroleum Co., Bartlesville, Okla.; B. F. Hake, Gulf Oil Corp., Pittsburgh, Pa.; J. Y. Haslem, Skelly Oil Co., Tulsa, Okla., and R. V. Phelps, Warren Petroleum Corp., Tulsa.



Carter

*** LP-Gas**

Carter produces high quality Propane and Butane for both industrial and domestic uses. Our service and products are unexcelled. You can depend on Carter.

Wholesale Only

THE CARTER OIL COMPANY
T U L S A , O K L A H O M A
P. O. Box 801 Phone 2-6101

British LPG Industry Profits Beginning To Increase

A comprehensive picture of British mobile gas industry activity is offered in the report by Calor Gas Ltd., in which Barrington C. Gain made these points:

The year has seen an increase in turnover and in customers; steel cylinder scarcities, difficult for some time, have improved and supplies are now satisfactory. Trading profits have increased, due largely to in-

creased turnover and ability to absorb higher distribution charges by reason of that turnover increase on today's market.

The need to secure and hold supplies of cylinders has forced spending on a heavy level over the past four years. In that period Calor Gas has spent no less than 1,486,000 English pounds on cylinders. The position is such, however, that the continuation of heavy sums on replacements ought to decline. Maintenance of cylinders, impossible for years be-

cause of the pressure on use, is also being taken up and a much better position applies.

Biggest headache of this—and all—companies is the high taxation level. Tax takes nearly 70% of net profits as against 67½% last year. How industry is to re-equip under this heavy burden is a problem. Efficiency is being hit increasingly.

B. B. Woodward Named Manager No. Dakota Firm

B. B. Woodward has been named manager of Carrington Bottlegas & Appliance Co., Carrington, N. D. Mr. Woodward, who was formerly a salesman with the Wisconsin Gas & Electric Co., Wisconsin Rapids, Wis., has had seven years experience in the gas business. The Carrington company is a branch of Dakotas' Bottlegas & Appliance Co., Inc., of North Dakota.



B. B. Woodward

These companies are subsidiaries of the Bemidji Bottlegas Co. of Bemidji, Minn., one of the pioneers of the industry in northern Minnesota, having operated town plants as well as being engaged in rural distribution for many more.

Ed J. Casper is sales manager of the parent company.

Skelly Oil Co. Is Drilling LPG Storage In Kansas

The Skelly Oil Co. has begun the first phase of establishing a large salt bed storage facility for liquid petroleum gas on a 48-acre tract a mile west of Conway in western McPherson county, Kansas.

The company has started drilling operations at a test which is to be used as a salt brine disposal well.

J. W. Haslam, Tulsa, engineer for Skelly, said the test will be drilled to the Arbuckle lime for completion and when the salt bed storage 400 feet below the surface is washed out the brine will be pumped into the deep well for disposal.

Skelly is the second firm to establish salt bed storage in western McPherson county. The National Cooperative Refinery Association of McPherson already has one 60,000-barrel underground storage facility east of Conway and it already is in use.

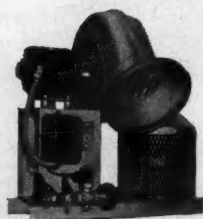
Hotter Heat per Penny

with

.....

Kilbury HEATER
"homogenized heat"

Suspended Industrial Gas Heater — No Vent Required*. Will Heat Up To 2000 square feet for 3¢ per hour!



- It Must Be Good . . .
- Thousands sold!
- Performance proved!
- Used by leading firms!

Note This Exclusive Feature:

Now . . . Natural Gas or LP Gas-Air can be used on the SAME BURNER without changing orifice or pilot (with LP Gas-Air range between 1400-1600 BTU per cubic foot at proper pressure).

ALSO AVAILABLE IN ALL-ELECTRIC 230 AND 440-VOLT MODELS FOR USE WITH OR WITHOUT DUCTS.

- Write to Dept. B P for Explanatory FREE Booklet.

Every day, more and more markets, factories, warehouses and offices are recognizing this revolutionary development in low-cost heating comfort, and are having it installed within a short time after inquiry.

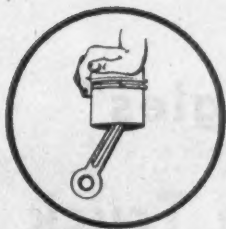
Get the facts from your dealer . . . and get them straight!

**Approved as an unvented heater, circulator type, for commercial and industrial use. Is not affected by the State Housing Act of California.*

KILBURY MFG. CO., INC.

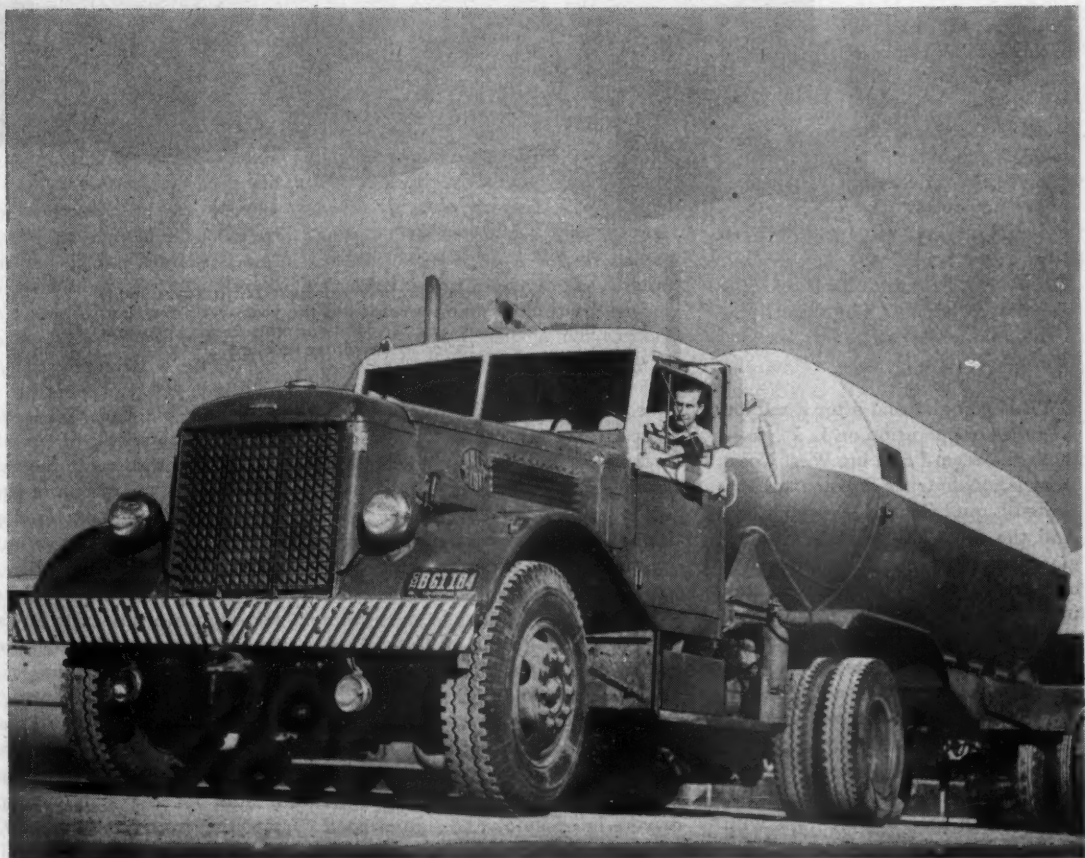
14529 HAWTHORNE BLVD.
DEPT. B P • LAWDALE, CALIF.

Butane-Propane



POWER SECTION

INSTALLATION • CARBURETION • SERVICING



This LPG operated truck-tractor has gone more than a million miles, with only one engine overhaul. The company drivers still prefer this job to a number of newer trucks.

Drivers "Work the Angles" to get Million-Mile Truck



The reserve power in this transport outfit saves many hours of operating time during the year. With transport time valued at \$12.50 per hour, this is an important factor in operating economy.

STILL going strong after a million miles of operation on L. P. gas—that's the record of a big West Coast International truck operated by United Liquid Gas Co., Fresno, Calif. And the huge 325-hp Hall-Scott engine, which was factory-equipped to burn the best fuel on earth, has hung up an enviable record for dependable service and low maintenance cost. It had its first major overhaul at 520,000 speedometer miles, and is not yet in need of its second overhaul.

The company drivers call this truck the "hot rod," because it has always been able to move out with its load faster than any other truck in the company's fleet. Which is only natural, since the other engines are in the ordinary "big truck" classification, with less than 200 hp.

Being human, as well as truck drivers, the men on the job prefer to handle the rig that gives the best performance. They find all kinds of reasons to rationalize this prefer-

ence, such as their desire not to obstruct traffic for the passenger cars on the road, but it does not completely cover up the competitive urge which makes any normal truck driver want to "out-perform" any other truck that he finds on the highway.

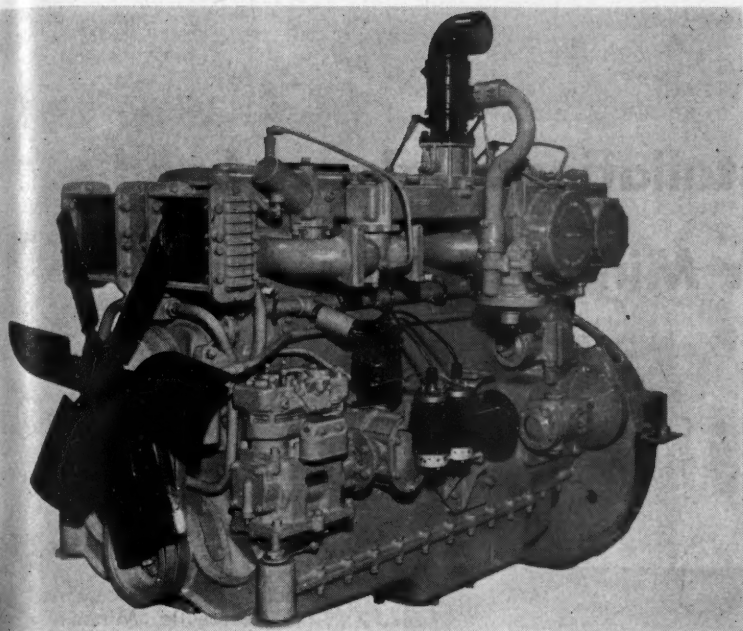
The company management is quite in sympathy with the attitude of the drivers, as long as they refrain from excess speeds and recklessness. The purpose of power is to save time in moving loads, and this has a healthy effect on the balance sheet—if used with judgment. To help keep the drivers lined up on the side of good judgment, the truck is equipped with a recording speedometer, which gives a record of both time and speed. According to one driver, this device tells the boss about it every time he keeps his throttle foot too long on the coffee shop rail, and then holds it down too hard on the floorboard to make up for lost time.

The regular job of United Liquid

Gas Co.'s big Hot Rod is to haul a double trailer load of product from the loading stations to the company's 21 branches, or to one of the dealer plants which they serve on a wholesale basis. This complete outfit—the truck-tractor, a semi-trailer, and a full trailer—come very close to the legal limits of the state of California in both length and weight, and they move nearly 8000 gallons of gas per trip. Most of the loads originate at Huron, 50 miles west of Fresno (see this complete story elsewhere in this issue), where the company maintains a bulk loading station supplied by pipe line from the Standard Oil gasoline plant in Kettleman Hills.

This supply is not always adequate, particularly during the peak winter season, so it is frequently necessary to haul from Taft, or other points in the southern end of the San Joaquin valley. For these longer trips, the drivers find numerous and ingenious reasons to ask for the Hot Rod.

This truck unit is also pressed into



The Series 400 Hall Scott engine, develops 325 hp. on propane. The factory - installed fuel system shown here consists of an Algas 1200-A heat exchanger, Algas Series 1400 carburetor, and Century atmospheric lock-off.

service for moving extra heavy loads on a flat-bed semi-trailer which the company keeps as a utility vehicle. It has hauled several 30,000-gal. storage tanks out of San Francisco, and on one occasion was sent to Wyoming with a load of pipe.

In its regular assignment, the speedometer does not give a true picture of the extent of the operation of this engine. It tells only of the road miles, but the engine also drives a compressor, mounted behind the cab of the truck, which unloads the LPG from the trailer tanks. While this is practically idling, it represents many hours in use, as the management reports that several compressors have worn out on this outfit.

The mechanical history of this engine has been singularly free from trouble. When it was first placed in service on Nov. 7, 1947, the company bought a spare cylinder head assembly, to have it on hand in case of need for a quick replacement in case of valve failures. This is a point of importance in such operations, as the head can be replaced in 45 minutes, and with the truck doing a job worth \$12.50 per hour, it had better not be laid up needlessly for very many hours.

The spare head seemed advisable as insurance against loss of time, because it can be replaced quickly and the truck put back in service. The

head that was removed can then be reconditioned, and held in stock with valves already ground, awaiting the next emergency. The idea is very sound, but the spare head is still on the shelf. The valves in the original head have been ground, but always at times when the engine was laid up for other major work, such as replacing piston rings.

The record shows that the engine needed valve work and new rings only twice before its first overhaul which took place at the named 520,000 speedometer miles. This work was done at the Hall-Scott factory, in Berkeley, Calif. The invoice for the complete overhaul job amounted to \$1147.01, and included rebuilding the starting motor, generator, and the compressor for the air brakes. New pistons, cylinder sleeves, and bearings were installed. The head was fitted with new valve guides and new exhaust valve seats. Spark plugs and ignition wires were replaced. There were no other major replacements, and the crankshaft did not require regrounding.

The engine has now gone past the million-mile mark, and it is still in active daily service. The pistons were recently re-grooved and fitted with new rings, and the valves were ground. These operations have deferred the need for another overhaul for quite a few thousand miles.

The L. P. gas carburetion units, installed at the Hall-Scott factory when the engine was originally assembled, consist of Algas regulators, heat exchanger, and carburetor, and a Century atmospheric lock-off. The original units, overhauled occasionally, have gone through the million miles with the engine. Fuel consumption has averaged better than 3 miles per gallon, which is not bad for an outfit that weighs over 40,000 lbs. empty, and close to 75,000 lbs. loaded.

Part of the secret of the unusually trouble-free record of this engine is its great reserve power. At road speeds, the engine is just loafing along, developing a small fraction of its total power. This keeps its operation far below the limits for which it was designed. When power is needed for acceleration, it gets up to free-running speed in a hurry, so it is in its "loafing range" more of the time than would be possible with less reserve. Likewise, when climbing a hill, higher speed is possible without laboring.

And finally, the high power factor has made it possible to use a high final gear ratio, so cruising speed can be maintained with low engine speed. All of these factors contribute to the satisfactory record for low fuel consumption in relation to the tonnage handled.

The latest addition to the United Liquid Gas Co. fleet is a similar truck-tractor unit, built to order by the Kenworth Motor Truck Co. Because of the outstanding record of the Hall-Scott in the company's first Hot Rod, the same power plant was specified for the new truck. With this new unit coming in, the company had planned to keep the "million-miler" as a reserve truck, to be used only in emergencies. It was a good idea, but the drivers did not agree with the management. They figure that two of the big brutes are just twice as good as one, and they want to go on using the old one.

Truck drivers are all hot rod artists at heart.

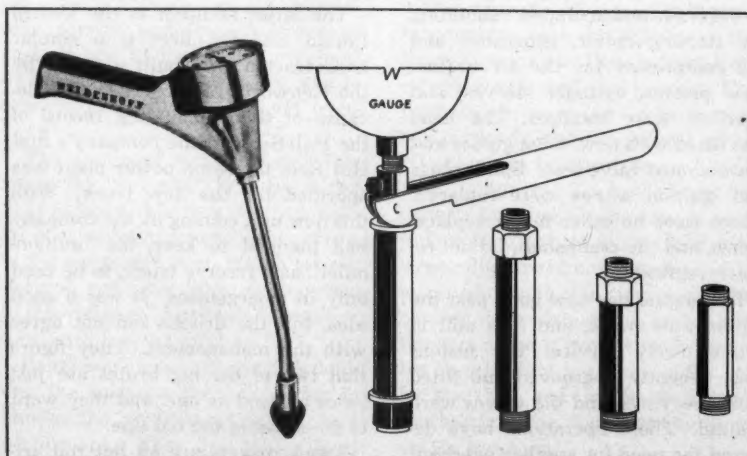
Tractor Installations Balance Load for Minnesota Distributor

- Conversions Are Simple — Only Three Instruments Needed

By **C. F. Butterworth**
Vice President
Magic Gas Service, Inc.
Ortonville, Minn.



For adjusting carburetors, the vacuum gauge and the combustion meter are used together.



Compression testers come with various types of connectors. Their cost is nominal.

MANY L. P. gas distributors in our area — western Minnesota and eastern South Dakota — are turning down domestic heating customers because their acceptance would put their winter-summer load balance outside the 1½-1 ratio.

Based on our own experience over the last three years, we do not believe that this is necessary in the average case. Our own ratio is now very nearly 1-1, and we take on every good heating account that we can sell. We accomplished this desirable load balance largely through the active promotion of tractor carburetion.

Our average L. P. gas tractor consumes about 3000 gallons of fuel per season. This balances three average domestic heating installations, so the problem is simple arithmetic and selling according to plan.

The average operator says, "I don't understand propane carburetion; I don't want to carry a stock of tanks and carburetors; when I do sell a prospect, he wants the installation made right away. To do a satisfactory conversion job, I need a lot of expensive testing equipment, and I haven't anyone who knows how to use it."

Actually, he is able to handle the job if he has a service man who knows a little about gasoline carburetion, plus a fundamental knowledge of L. P. gas, and the common sense that most country boys grew up with. The carburetion equipment for pro-



Even the hardest-to-please critics are acclaiming Reo's new 100 hp LP-Gas engine, "the performer of the year." Reo's new 100 hp *Gold Comet* engine is factory engineered and built to take full advantage of LP-Gas characteristics. That means sensational savings in operating and maintenance costs.

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3. Reo LP-Gas kits for converting No. 255 and No. 331 gasoline *Gold Comet* engines to this modern, economical fuel.

This new engine is available in the Reo Model 20 truck or as a replacement engine in similarly sized trucks of any make (16,000 to 18,000 GVW). The Reo F-20 is the first vehicle of this size to be powered by a factory designed and developed LP-Gas engine. It is an ideal truck for LP-Gas bulk tank bodies of approximately 1200-gallon capacity.

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REO MOTORS, INC.

LANSING 20, MICHIGAN



Tractor tanks piled up like cordwood along the fences at the front and back of the Magic Gas Service yard.

All the farmers in the territory know that Magic Gas Service can take care of their tractor carburetion problems.



pane is much simpler than that for gasoline—it consists of two stages of regulation providing fuel for the simplest carburetor ever known. And when the carburetor is properly installed and adjusted, it stays put. The testing equipment needed for most installation and service work consists of three simple and fairly inexpensive instruments — a vacuum gauge, a compression tester, and a combustion meter, otherwise known as an air-fuel-ratio analyzer.

When we started our carburetion conversion work three years ago, there was no place this side of the factories where we could obtain carburetion equipment and tanks quickly. So we laid in a stock of carburetors and supplies, and a carload of tanks, to supply other dealers who

were in the same boat as we were. Now any operator who needs to put a conversion on quickly can call us on the phone, and the carburetion units, tank, and supplies are shipped out the same day. In the meantime, other local sources have opened up for supplying the necessary conversion units.

We have started a good many L. P. gas operators out in converting engines. When possible, we like to have them send their first job to our shop, with their serviceman. He makes the conversion, getting assistance as he needs it. While here, he learns how to make the conversion, and is also instructed how to do any necessary service work that may arise later. He leaves with an understanding of how the units work, and with confidence

Carburetion Conversions Balance Fuel Load



This converted John Deere "A" outpulled the new model "60".

in his ability to tackle the job when he gets back home. While here, he sees his first conversion checked out on our chassis dynamometer, and learns how the vacuum gauge and the combustion meter function in relation to power and the other normal engine conditions. With this knowledge, he is able to do a good job in his own shop, using only the three essential instruments for guidance.

While here we show him how to use the compression gauge, particularly in connection with the early steps of selling and preparing for the conversion. He learns about the operator who asked us to go with him to see a customer whose tractor seemed to be running pretty well, except that it did not have nearly as much power as he had expected. Like any other

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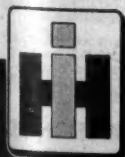
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JACK POMRENING
in the
Butane-Propane
NEWS, December,
1952 issue, Page 123



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owner who had not had any previous experience with L. P. gas carburetion, he wanted to blame the fuel when the operation was not right.

The first step in finding the cause of the trouble was to pull the spark plugs and test the compression. The gauge registered about 55 lbs. in each cylinder—almost exactly half of what it should have shown, according to factory specifications. We asked the dealer what the compression had been at the time of the conversion.

"We didn't check it," he replied, "because Joe told us he had run the engine only about 100 hours since the valves had been ground."

Then the owner spoke up, and said that he had operated it on gasoline for one season, and the valves were so bad that he had just thrown them away and put in new ones. He thought that with only 100 hours of operation before conversion, the valves would be all right. Perhaps they should have been, but a quick test with the compression gauge would have shown that they were going bad fast.

The valves were ground in, and then the tractor was able to pull the



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plows easier, in the next higher gear. The owner reported that it threw the dirt so far that he had to drop back to the same gear he had used with gasoline, and then the engine operated with less throttle opening, and showed a good saving in fuel.

In contrast with this, we tell the serviceman about a similar tractor which we converted early in our experience. It had been in use one week when it was brought in for conversion. The compression test showed about 105 lbs. in each cylinder. After two full years of use without any engine work, it was brought in for a re-check. The cylinders at that time tested 115 lbs. Certainly the rings had seated but were not badly worn, and the valves must have been perfect to show that reading. Incidentally, we have never seen one do this well on gasoline.

Since the serviceman may be called upon to convert almost any make and model of tractor, we give him enough basic information to enable him to handle the problems as they arise.

Our own procedure in making conversions, which we recommend to

other L. P. gas operators, begins with the compression test. If the gauge shows that it is below standard, we make a "wet check" by squirting some oil on top of the pistons. With an "L"-head engine, we slip a little piece of rubber tube over the spout of the oil can, so the oil can be put on the piston instead of around the valves. If the re-check with the gauge shows a considerable increase, we know that the rings are bad, but if the reading remains about the same, it indicates that the rings are good, and the valves are leaking. We report these findings to the owner, and explain that these units need reconditioning, anyway, and that they should be taken care of before the conversion is made.

While the spark plugs are out for the compression test, we inspect them, and either clean up the points and adjust the gaps if they are still good, or replace any that are bad.

We find that about 90% of the trouble that is blamed on carburetion of either gasoline or LPG engines actually originates from faulty ignition. No amount of work on the

carburetion system can make the engine run right if the electrical system is out of order.

So our next step is to look at the distributor points. If they are gapped correctly, according to the specification sheets which may be obtained free from almost every ignition equipment manufacturer, and are smooth, with a frosty gray color, we pass on to the next step. But if they are badly pitted, or off color, we replace them. It does not pay to fool around with points that are going bad. If they are fairly new, and are already looking bad, we suspect the condenser.

Any garage will test a condenser in about two minutes. We find about one in six are leaking or otherwise defective. A new condenser costs less than a pair of points, so if the condition of the points indicates a bad condenser, it pays to replace both. We use heavy duty points for all these replacements, preferably of a make having a brass strap in addition to the steel spring—the conductivity is better.

Next we look over the spark plug

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This John Deere "A," converted when new, picked up 10 lbs. of compression in two seasons, without a valve grind.



Ned Gloege's Massey Harris tractor has made a lot of converts around Odessa, Minn. It starts without trouble at 30 below.



The good old Farmall "F-20." Modern in 1930, modernized in 1950.

wires. If the insulation is getting bloated and soggy, or is peeling off, we install new wires. Then, with the engine running, we pull a wire off a spark plug and see what kind of spark is coming through. If it is not a hot blue spark of good strength, it is necessary to check the coil. Once again, any garage can make this test in just a few minutes. In replacing a coil, it must be connected up with the correct polarity—if the "plus" side of the battery is grounded, the "plus" terminal of the distributor must be connected to the distributor, and not vice versa. Incidentally, while we find very few bad coils, we frequently find coils on older tractors that are connected up backwards, and these engines never run as they should until the polarity is corrected.

Test Lines for Leaks

With the ignition system in good working order, we are ready to install the carburetor. It is important to install the converter (or regulator) below the level of the top radiator tank, just as in installing a car heater. The fuel lines should be tested for leaks, in exactly the same way they are tested in making a domestic installation—use soapy water instead of a match.

Please note that up to this point, the only instrument that the installation mechanic must have is a compression tester. For the adjustment of the carburetor, we need a vacuum gauge connected to the intake manifold, and a combustion meter attached to the exhaust pipe. The instruments should be hung up where both will be visible to the driver. With the tractor pulling a load in the field or on the belt, and the throttle wide open, the vacuum gauge should read below 2, and we adjust the carburetor to make the combustion meter read 13 on the gasoline scale. Then as we return the throttle to half open position, with the vacuum gauge reading about 10, we want the combustion meter hand to swing gradually over to 14½. This is the "economy setting" for light loads.

In the Century carburetor, which we use, the economy setting and idling are controlled by the same rotating "V" notched bar, and if one is right, the other must also be. The enrichment for power is adjustable, by rotating an airfoil shaped spray bar.

In adjusting other makes of carburetors which use a piston type economizer, the vacuum gauge is essential to see that the change in air-fuel ratio takes place at the correct vacuum reading. Instructions for adjusting these makes of carburetors can be obtained from the individual manufacturers, but they are all specified in the *Butane-Propane Power Manual*.

While the compression gauge and the combustion meter are essential for accurate work, the vacuum gauge is the most versatile instrument of the three. With it, the mechanic can identify many conditions at once, including bad ignition, poor compression, leaking valves, broken valve springs, leaking manifold, and blown gaskets. A full set of instructions for making these tests comes with each gauge, and the cost is only a few dollars.

The best proof that a man can make a good conversion using only these three instruments as his guide is shown by the fact that many operators who got their first experience in our shop, as described earlier in this article, are making conversions right along. Their converted tractors are doing so much better than they ever did on gasoline that the owners are selling additional conversion jobs to their neighbors and friends.

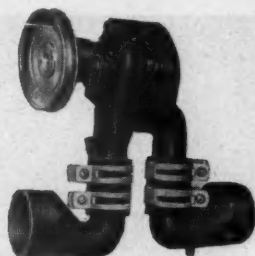
Only last week I called on an operator who got his first conversion experience in our shop this past spring. With no other instruments, and little previous automotive experience, he has already made a fine start toward balancing his load and putting himself in position to sell a great deal more heating fuel.

Together we called on the owner of the first tractor that this man converted. The owner stated that the conversion was the best machinery investment he had ever made. He also told us that this fall his neighbor, using a similar John Deere "A" on gasoline, had not been able to pull his corn sheller through the field fast enough to make it operate properly. The converted tractor was hooked on the sheller, and it rolled along at the proper speed.

This came to the attention of the local John Deere dealer, who has since arranged to have his top mechanic learn L. P. gas carburetion at our shop, so he will be in position to give his customers the extra advantages of the use of propane.



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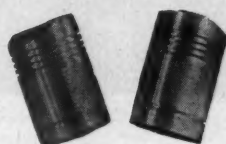
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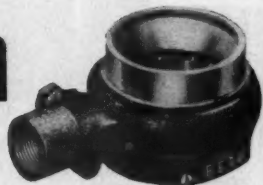
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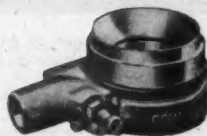
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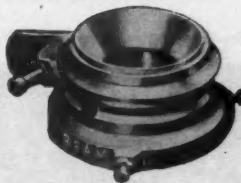
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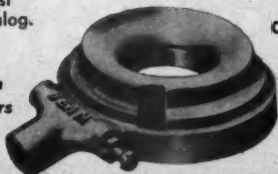
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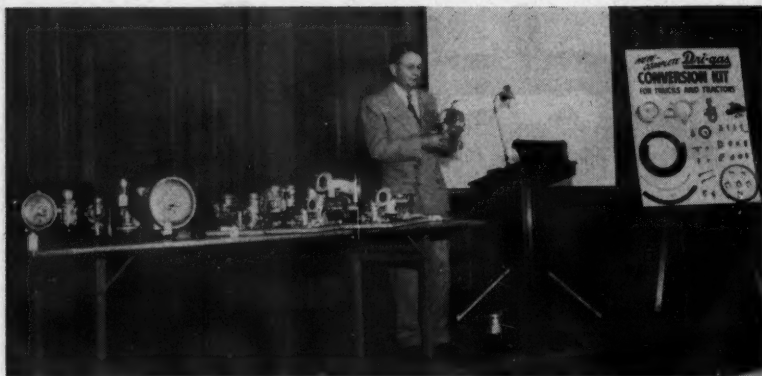
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Tom Clark, Century carburetor official, telling Dri-Gas dealers about his company's products displayed on table.



Ben Brunner, sales manager, of Manchester Welding & Fabricating Co., Lynwood, Calif., speaking on L.P. gas motor fuel tanks at the Dri-Gas dealer service school in Kankakee, Ill.

Dri-Gas Dealers To Sell Complete Carburetion Kits

In connection with the Dri-Gas Corp.'s over-all marketing development program, 126 of the company's dealers met in Kankakee, Ill., early in November to hear the details of the newly formulated carburetion conversion package deal.

The meeting was in charge of Thomas McElhinney, vice president in charge of the bulk service division, assisted by John Clanton, the company's carburetion engineer.

The carburetion phase of the program, as announced at the meeting, includes complete conversion packages for equipping the more popular tractor and truck engines. These packages are to be complete, including the appropriate Century carburetion equipment, Manchester propane tanks, and the necessary incidental items which are required to make the conversions. The carburetion packages will be stocked at the company's warehouse, available for immediate shipment to dealers.

In connection with the meeting, a

two-day service school was presented, covering the various aspects of carburetion, from installation to field service problems. Participating in this school were Tom Clark, assistant sales manager, Century Gas Equipment Co., of Lynwood, Calif., who discussed installation, service, and sales problems, and Ben Brunner, sales manager, Manchester Welding and Fabricating Co., Los Angeles, who talked on the various engineering problems and the functioning of the valves and other fittings which are necessary in mobile tanks.

The Dri-Gas Corp. holds similar service schools for dealers at frequent intervals, and in these the sale of carburetion conversions is being consistently encouraged as a means of maintaining proper winter/summer load balance.

Dispensing units and filling stations for LPG-powered automotive equipment are being established rapidly among Dri-Gas dealers in Illinois, Indiana, Wisconsin, Iowa and part of Michigan.

A new warehouse, now under construction, will carry a large stock of Century carburetors, Manchester tanks and other conversion equipment so that rapid deliveries can be made to dealers during seasons of great demand.

Santa Fe Engineering Moves Headquarters to Tulsa, Okla.

Harold D. Robinson, owner and manager of Santa Fe Engineering & Equipment Co., has transferred company headquarters from Los Angeles to Tulsa, Okla., where previously a branch manufacturing operation has been maintained.



H. D. Robinson

The move to Tulsa was prompted by the fact that that city is in the heart of the region where most engine conversions are made.

The move to Tulsa has increased potential production capacity over two-fold.

Santa Fe will produce their complete line of "Custom-Built" motor fuel tanks, a field pioneered and developed by the company in the past eight years. Heretofore, the Tulsa plant has manufactured only factory tractor models.

The Tulsa plant is located on a 2 1/2 acre site recently purchased on Sand

Dri-Gas dealers from several Midwest states who attended meeting.



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2. Basic Engine Facts
3. Basic Facts of Fuel Combustion in Engines
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5. L.P. Gas Carburetion Systems
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7. Fuel Supply System. Vehicle Tanks and Equipment
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20. Lubrication of L.P. Gas Engines
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23. Selling L.P. Gas Carburetion Appendix (including Definitions)

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Here is the first authoritative guide ever published for the rapidly expanding LPG power market. Basic facts of engines, fuel, and power are given in easy-to-understand language; then careful directions and clear illustrations take you step-by-step through installations, conversions, servicing . . . *everything* needed in a practical working manual for practical men.

What Readers Say

Nearly 5,000 copies of the Butane-Propane POWER MANUAL have already been sold. Readers throughout the country have paid tribute to the excellence of the work in statements such as these:

"This book answers a need our industry has had for years."—F.E.S., Bartlesville, Okla.

"It is head and shoulders above most of the normal technical books."—C.V., Cedar Rapids, Iowa.

"After reading it, I want every man in my department to have one."—P.H., Fresno, Calif.

"It is the best we have seen. We are making a present of one to each purchaser of an LPG powered REO truck."—H.D.E., Detroit, Mich.

"So far ahead of any handbook we have thus far seen as to classify it as invaluable."—A.B.F., Boise City, Okla.

Butane-Propane News, 198 S. Alvarado St., Los Angeles 4, Calif.

Please send.....copies of the Butane-Propane POWER MANUAL. I enclose \$.....in payment.

Price \$3.50

(in California
add 3% Sales
Tax)

We pay postage on
orders accompanied
by remittance.

NAME.....

COMPANY.....

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CITY.....ZONE.....STATE.....

Orders from individuals must be accompanied by amount of purchase unless credit has been established.

Send An Issue of the New Size BUTANE-PROPANE News To Each of Your Friends - - -

...Without Charge

THE continuing growth of BUTANE-PROPANE News has been largely influenced by the loyalty of subscribers who not only recommend it to their friends, but who encourage them to become *regular* readers.

Would you serve as a "jury" of one and list the names and addresses of your friends and associates whom you think will be most interested in BPN's coverage of the LP gas industry? The men with whom you discuss LPG problems, or to whom you "pass-on" your copies of BUTANE-PROPANE News are the most logical readers.

In turn, we will send a copy of this issue to those men on your list who are not regular subscribers — *without charge and with your compliments*. The quantity available for this purpose is limited. Please do it today.

THE EDITORS

BUTANE-PROPANE News
198 South Alvarado Street
Los Angeles 4, California

Please send a free copy of the new size BUTANE-PROPANE News with my compliments to each of the persons listed below:

TO.....

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TO.....

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TO.....

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TO.....

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TO.....

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TO.....

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• SENDER.....

FIRM.....

ADDRESS.....

Springs Road. Present company policies call for the manufacture only of custom type tanks.

West Coast services will be maintained through Teeco Products, Fresno, Calif., and Portland, Ore., which firm has been appointed West Coast distributor. A stock of popular sizes of mobile tanks and "Custom-Built" tractor tanks will be maintained at all times by the distributor. A very favorable freight rate from Tulsa to the West Coast makes possible economical shipment to that area.

Customer Will Buy If Service Useful

AT the end of every book on salesmanship, and at the conclusion of every course on salesmanship, a statement should be made along the following lines:

You can forget everything else you have ever heard, read, and observed about salesmanship provided you remember this one thing: That you do not need to sell anything; your customers will buy from you if you convince them that your service is of a high and useful character.

For every good man looking for a job, there is a good boss looking for a man.

And for every salesman looking for an order, there is a customer looking for an intelligent man to fill an order.

If there is any art in salesmanship it is in the location of these customers who want your goods and your service. Believe me, they want to buy from you as badly as you want to sell to them.

I have been visited by scores of salesmen, and aside from a few who have used interesting tricks, I have never once been impressed by what could be called clever salesmanship. The salesmen who take away the business are simply honest, sincere, intelligent men who tell me what they can do and convince me they can do it.

When a good salesman leaves any one of us we really do not know we have been talking to a salesman. We have the same feeling toward these real salesmen that we have toward a man on our payroll. We tell them what we want to accomplish and we leave it to them to accomplish it for us.

All the selling tricks ever invented are useless unless a salesman understands and believes this fundamental principle.—By William Feather in "The Weathervane", The Weatherhead Co., publication.

The Trade



D. R. Roper



Don E. Welch

The territory served by the Omaha sales office of the LPG division of *Warren Petroleum Corp.* has been expanded to include sales in North Dakota, South Dakota and Iowa, as well as Nebraska and Kansas, according to an announcement by G. L. Brennan, general manager, and E. W. Voice, assistant manager of sales.

D. R. (Del) Roper, who has been handling L. P. gas sales in Kansas, with headquarters in Tulsa, has been transferred to Omaha as assistant to Don E. Welch, manager of the Omaha district office. Prior to Welch's appointment as manager at Omaha he was assistant manager at Warren's Mobile, Ala., district office.

Armstrong Products Corp., Huntington, W. Va., manufacturer of gas heaters, has announced the election of L. O. Reese as president and general manager to succeed the late Hubert K. Dalton.

The directors of the company also named R. F. Knight vice president and treasurer, and H. D. Peck vice president and works manager.

Mr. Reese joined Armstrong in 1935 as assistant to the general manager, and was made vice president and general manager in 1938.

The company also announced appointment of James O. Clagg, former manager of service and quality control departments, as purchasing agent.

C. G. Atkin, president of the *Barber Gas Burner Co.*, Cleveland, has appointed J. D. Williams field supervisor in charge of all service to dealers, distributors and manufacturers.

Mr. Williams will make scheduled



Yours
for the
asking




... this new, authoritative handbook—based on the latest research in gas appliance venting

When you install gas burning appliances, you'll want this useful handbook containing complete, up-to-date information on gas venting practices plus many helpful installation tips. The findings presented are based on extensive engineering research recently completed by the Metalbestos Division, William Wallace Company, with the assistance of Stanford Research Institute.

Here are some of the subjects covered:

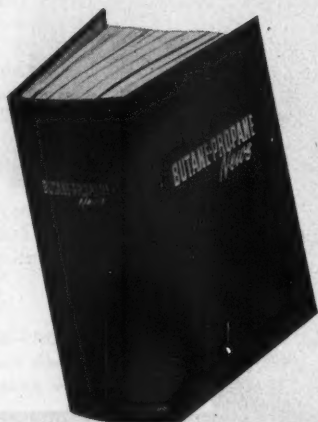
- *Fundamental Rules of Venting*
 - *Determining Correct Vent Sizes and Capacities*
 - *Choosing the Location of Vertical Vents*
 - *Rules for Venting Various Types of Appliances*
 - *Vent Installation Tips*
- Amplly illustrated throughout—and indexed for convenient reference—this handy pocket-size booklet will be an invaluable aid to anyone who specifies, sells, installs or services gas burning installations.

Send for your free copy today! No obligation.

 METALBESTOS DIVISION <small>WILLIAM WALLACE COMPANY • BEEMONT, CALIF.</small>		DEPT. "M" Please send me with-	
out cost, _____ copies of VENT INSTALLATION HANDBOOK.			
NAME _____		TITLE _____	
COMPANY _____			
ADDRESS _____			
CITY _____		ZONE _____ STATE _____	

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pocket-size copies
of **BUTANE-PROPANE**
News



A beautiful DeLux Binder made especially to preserve the old, pocket-size copies of your favorite magazine. Holds 12 copies—one full year. Magazines can be inserted or taken out in a second's time, or bound permanently for future reference. Covered with long-lasting maroon Du Pont Fabrikoid with the name Butane-Propane News stamped in gold on cover and backbone. You'll be proud of these beautiful binders. \$2.00 each, postpaid. Get extra binders for past files. Send them to your friends as gifts.

Send check for \$2 for each binder or \$2.50 from countries outside U. S.
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BOUND IN A FLASH

Slip open magazine under elastic band and it's bound firmly into place. Can be removed just as quickly.



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The curved backbone and patented binding system allow each magazine and page to open flat.



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Patented Elasto Cord supports weight of each magazine separately, no mechanical devices to get out of order.



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Plexon plastic covered wire and instructions supplied with each binder. Replaces elastic cord for permanent binding.

trips in every territory with year-round operation. A station wagon, in which he will travel, is fitted with complete servicing tools and equipment. Requests for his scheduled visits are made directly to the home office in Cleveland.



M. J. Adams



J. J. Rasor

Establishment of the LPG purchases and sales division of The Texas Co. and the appointment of M. J. Adams as division manager and J. J. Rasor as assistant division manager is announced by G. R. Bryant, vice president of the company, Houston.

Function of the new division, which will have headquarters offices at Houston, will be the handling of purchases and sales requirements of the company for natural gasolines and liquefied petroleum gases.

Since 1947, Mr. Adams has been assistant division manager of the gas division, Texaco's producing department, while Mr. Rasor has been assistant superintendent of the West Tulsa Works, Tulsa, Okla., in the refining department.

Earl Fuson, recently appointed assistant manager of the Dallas office, "Metalbestos" division of William Wallace Co., will assume the administrative duties of that office under the guidance of C. E. Blome, manager, it is announced by A. L. Hawley, sales manager.

Mr. Blome, in addition to his work in conjunction with Mr. Fuson, will be in charge of the national training and promotion program for William Wallace Co.

To further meet the increased demands for Ensign carburetion equipment for natural gas and propane, Ensign Carburetor Co. announces the purchase of a 5-acre site east of Los Angeles for a new factory and laboratory.

Newly developed laboratory equipment for complete studies of L. P. gas

AUTOMATIC INCINOR

GAS-FIRED INCINERATOR

A "MUST" in Homes with Automatic Heat
A FULL-PROFIT LINE • NO TRADE-INS

INCINOR IS APPROVED BY A.G.A. LABORATORIES

ACT NOW FOR COMPLETE DETAILS

INCINERATION DIVISION, BOWSER, INC., CAIRO, ILL.

behavior and utilization, particularly with respect to internal combustion engine use, has been completed at Ensign's present plant. The entire facilities of this modern laboratory will be relocated at the new plant site.

Ensign's expansion program includes not only plant additions but also additions in the field sales and service staffs and engineering research in connection with the increased number of Ensign factory-equipped tractors, trucks and buses.

A new warehouse and repair service operation for Viking rotary pumps will open March 1 at Atlanta, Ga. A complete 25' x 80' unit in a new industrial building located at 1214 Spring St., N. W., Atlanta, will house this new development on Viking pumps for the Southeastern United States territory.

C. W. Downing, head of the Atlanta office, will continue as manager of this new service.

A complete stock of industrial pumps and petroleum handling pumps, including L. P. gas pumping equipment, will be available from this stock. A complete repair service will also be available. The area covered by this new warehouse will be the states of Georgia, Alabama, eastern Tennessee, North and South Carolina, and Florida.

This is the second southern warehouse and repair service center established during the last 15 months. In January, 1952, a similar expansion was made at Dallas, Texas.

The appointment of Ford A. Nicklas as "Janitrol" sales representative in the Cleveland territory has been announced by H. C. Gurney, sales manager of the Janitrol domestic-commercial division, Surface Combustion Corp.

Mr. Nicklas will maintain his headquarters in Cleveland, where he will work in close association with Horace T. Gates, district manager, in the sale and service of Janitrol space heating equipment.

Also announced is the appointment of Wallace Morgan Oakes as Janitrol sales representative in the Albuquerque, N. M.-Pueblo, Colo., area.

Mr. Oakes has completed his training in the sale and service of Janitrol equipment and will work under William R. Egan, district manager of the company's Denver office. He will work closely with jobber men in this area but will contact consulting engineers and architects direct on military and other governmental installations, schools and commercial buildings.

NEW

one-man

APPLIANCE TRUCK



No. 79C
Appliance
Truck. Handle
length 60"
Nose width 24"

▲ This Thomas special appliance truck is designed for easy, one-man operation. Ends back-breaking lifting of stoves, crates, refrigerators, water heaters, etc. Double-braced tubular steel frame. 10x3.00 full pneumatic tires, Hyatt bearings. Furnished with 2 web straps. Order on "return if not pleased" basis. Thousands in use.

THOMAS TRUCK & CASTER COMPANY

274 MISSISSIPPI RIVER • KEOKUK, IOWA



Looking for the GAS HEATER

LINE that SELLS? choose

Martin

8 Fully vented Heaters 15,000 BTU to 85,000 BTU

22 Unvented Heaters 10,000 BTU to 50,000 BTU





53C
360
V-170

There is a correct size and style for every need. All AGA approved for natural, liquefied or manufactured gases—and all are equipped with automatic safety pilot.

Over 45 years stove experience

WRITE YOUR JOBBER OR DIRECT FOR FREE COMPLETE CATALOG

MARTIN STAMPING & STOVE CO., Huntsville, Ala.



\$4,090.00

1320 gallon single propane tank, pump, hose piped complete, ready to use, mounted on NEW 2 ton Chevrolet, 2 speed axle.

All sizes tanks and trucks, single or twin, 600 gallon to 2000 gallon.

IMMEDIATE DELIVERY

WHITE RIVER DISTRIBUTORS, INC.

Batesville, Arkansas



REGO LP-GAS EQUIPMENT

- Rochester Criterion Gauges
- Hose and Fittings
- Weco-Trol (Automatic control)
- ICC Cylinders
- Okadee Valves



P. O. BOX 566
2620 South Erway
DALLAS, TEXAS

C. K. Madison, Midwestern regional sales manager of *Rockwell Manufacturing Co.*, has announced the appointment of J. H. Walters as Houston district sales manager. Mr. Walters will be responsible for the coordination of all meter and valve division sales in the Houston district, which covers sections of Texas and Louisiana.

Mr. Walters became affiliated with Rockwell as a sales engineer in 1945 and prior to his recent appointment served as Houston gas sales supervisor. He was formerly employed in the sales department of the American Meter Co.



Bob Frazer

In an announcement by Joseph S. Fagan, president of *Mutual Liquid Gas and Equipment Co.*, Inglewood, Calif., Bob Frazer, long associated with Mutual, has been appointed to the position of general sales manager.

During the past seven years Mr. Frazer has been rapidly advanced at Mutual beginning in the field service department. Much of his first work was in servicing Mutual's domestic trade which numbers a good many hundred home and industrial customers throughout southern California. He also served in the equipment division of Mutual in manufacturing and assembling of furnaces and torches. He also had charge of the testing of Mutual torches and furnaces for a portion of his time. One year was also devoted to shipping clerk and then promotion to purchasing agent.

In order to expand its manufacturing facilities for fabrication of tractor tanks, truck tanks and anhydrous ammonia tanks, *American Tank & Manufacturing Co.*, Dallas, has recently acquired a second building near its main plant in which to manufacture these products.

In addition to manufacturing a complete line of the above products, *American Tank & Manufacturing Co.* also fabricates vessels for the petroleum industry. D. W. Scoggins is president of the company.

Two promotions in the sales division of *Servel, Inc.*, are announced by James F. Donnelly, vice president in charge of sales.

Donald R. Meckstroth, formerly director of marketing services, becomes manager of sales operations; Robert B. Robinson, formerly sales research manager, succeeds Mr. Meckstroth as director of marketing services.

Two new regional managers for Servel are Bert Cole, who becomes manager of the Eastern region with headquarters in New York City, and William K. Grube, former manager of Servel's Chicago operations, who becomes manager of the Midwestern region with headquarters in Chicago.

Also, Frank A. Mitchell of Buffalo, N. Y., was named general appliance sales manager; Lewis D. Eastmead of Evansville is the manager of household refrigerator sales, and Gordon J. Malone of New York is manager of home freezer sales.

At a recent national sales meeting, *Magic Chef, Inc.*, St. Louis, announced complete sales, advertising and promotion plans to the company's home heater distributor organization.

Magic Chef distributors were presented with 1953 "Heater Harvest" manuals outlining in details the four steps to a successful heater sales year: product, profit, promotion and people. The first major promotion is called the "Early Bird" heater sale and the theme of the day-long meeting was "Put the Show on the Road."



L. C. McRoberts

Leo C. McRoberts has been promoted from account executive by *Minneapolis-Honeywell Regulator Co.* to market supervisor in the appliance controls division, it is announced by Vice President John E. Haines.

Mr. McRoberts will direct sales of automatic control equipment made in the firm's Los Angeles plant for the expanding space heater market.

He joined Honeywell in 1946 in the Kansas City sales office, and in 1950 was assigned to the Dallas office as

sales manager of the wholesale division's southwest region. He became account executive in the Minneapolis office in October, 1951.



"Chet" Stackpole

C. S. Stackpole, vice president of the Williams division of *Eureka Williams Corp.*, Bloomington, Ill., announces organization of Williams "Gas-O-Matic" heating division, headed by A. F. Ward, sales manager.

Forty-one "Gas-O-Matic" models of five basic units are now in production. These include 12 models of "Low Boy" forced air furnaces, 9 of "High Boy" forced air furnaces, 6 of gravity furnaces, 10 of atmospheric conversion burners and 4 of power type conversion burners.

Harry L. Oberlin has retired after 42 years' service as director of purchases of *Scaife Co.*, and a total service of 54½ years.

A. V. Murray, president, also announced the appointment of F. C. Campbell, Jr., as purchasing agent.

Mr. Oberlin went to work for *Scaife Co.* the Tuesday after Labor Day, 1898, at the age of 13, as an errand boy hired by Charles C. Scaife, grandfather of Alan M. Scaife, who is chairman of the board of directors. Thus he has worked for and with four generations of the Scaife family.

T. A. Jones and Allan Anderson have been promoted to the field sales staff of the home appliance division of *Hamilton Manufacturing Co.*, Two Rivers, Wis., according to an announcement by R. G. Halvorsen, vice president in charge of sales.

While definite territorial assignments have not been made, Mr. Jones has been tentatively assigned to the Eastern territory and Mr. Anderson to the Southern territory.

Two *Tappan Stove Co.* employees who have been associated with the firm's plant in Murray, Ky. (The Murray Manufacturing Co.) have been promoted, effective immediate-

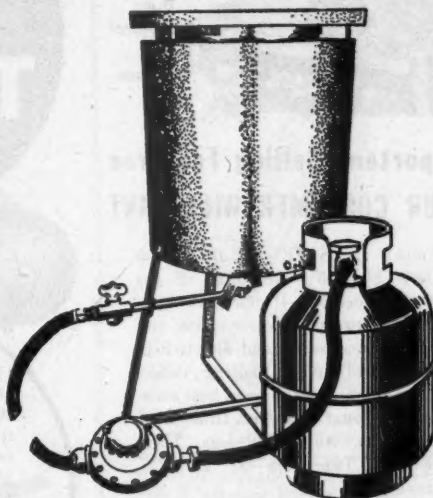
NEW LOW COST PORTABLE HEATER 'Heavy Duty' for The Building Trade

Just what has been needed for the building trade. Sturdily built for rough handling this portable LP heater can go anywhere. Operates from 40 to 60 hours on 100 lb cylinder (60,000 to 90,000 BTU).

Model D\$22.50
Model F (safety pilot)\$33.70

(Prices for lots of 10. Add \$1.00 for order less than 10)

Above net prices to dealer includes 6 ft. of neoprene hose and special reducing regulator to fit P.O.L. cylinder outlets. Price does not include cylinder. Orders accepted for future or immediate delivery.

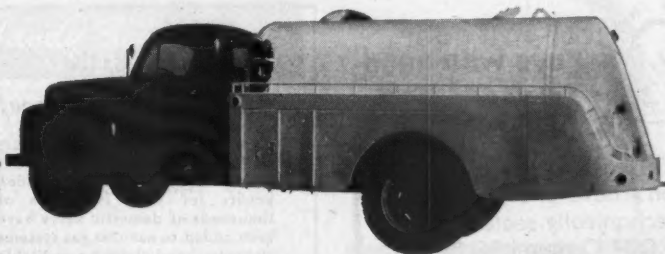


LP Gas Salamander Heavy Duty (SONIC RAY)

Your Headquarters for —Bottle Gas—

HOME GAS EQUIPMENT CO.

1301 Carnegie Ave. Tel. 5Uperior 1-5717 Cleveland 15, Ohio



TRUCK TANKS

- Twin or single barrel
- Light weight
- Low in cost
- Full or semi streamlined

ASME U69

Built to Your Specifications and Size

Write For Further Information and Prices

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STEEL CO.**

BOX 391

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BROWER GAS BROODERS



Burn
Natural
or
Butane
Gas

Important Selling Features YOUR CUSTOMER WILL WANT

Chicks are SAFE — Robertshaw 100% Shut-Off Valve turns off gas if pilot goes out. 1" fiberglass insulation between deflector plate and hover top conserves and directs heat against baffle plate. Radiator, deflector and baffle plate spread heat evenly. Thermostat controlled. Draft-proof ventilation. Adjustable legs. Thermometer. Two sizes—60" and 72" canopies.

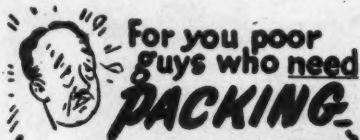
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Quincy, Illinois

World's Largest Line of Poultry Supplies



We're truly sorry if you don't have one of the new mechanically-sealed LEAK-PROOF Corken LPG Pumps. But if you're still using an old type pump, why not make the best of it. Tell us the make and model and let us send you Corkenpak, the specially compounded plastic packing, molded to fit shaft and box perfectly. Will keep any pump leak-free longer and at less cost than any packing you ever used.

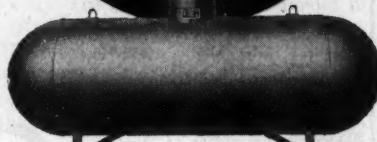
A PAIR OF THESE MAY HELP:

Pulling packing out is safer than blowing it out. Use a pair of Corken Flexhooks — No. 1 size for small shaft pumps, pair, \$2.50. No. 2 for large pumps, pair, \$3.00.

CORKEN'S inc.

208 E. Grand - Oklahoma City

BURNHAM LPG TANKS



17 standard systems from 115 to 1,000 gallons — center and end-mount styles. The quality, safety, and service built into these tanks are second to none. Shipped moisture-free. Registered with National Board.

Burnham Corporation

TANK DIVISION
IRVINGTON, NEW YORK

There Are Extra Profits In Your Area!

Many industrial natural gas users in your area faced with gas curtailment are a source of hidden profits for you. Hundreds of thousands of domestic users have been added to natural gas systems and now have claim on available gas supplies. Industrial users, therefore, need standby plants more than ever.

If you know of any such problems in your area, inquire into the DRAKETOWN liberal co-operative plan for dealers and distributors.



Your Assurance of a Good Job

Serving utility and industry
for over thirty years.

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11 WEST 42ND STREET • NEW YORK 36, N. Y.

ly, Alan P. Tappan, president of the company, announced recently.

Robert M. Lamb, manager of the Murray plant, has been advanced to vice president in charge of interplant coordination of the Tappan Stove Co.'s three factories, and Verne O. Kyle, superintendent of the Murray plant, has been named assistant manager there.

In his new capacity as assistant manager of the Murray plant, Mr. Kyle will assist W. R. Tappan and assume the managerial duties during his absence.

Bastian-Morley Co., Inc., La Porte, Ind., announces the election of H. J. Rose as president, succeeding J. P. Morley, who becomes chairman of the board of directors. N. R. Feltes, who was vice president, is now vice chairman of the board.

Three new vice presidents have been elected, H. B. Carbon in charge of sales, J. E. Williams in charge of manufacturing, and H. J. Morley in charge of advertising and sales promotion. The treasurer is H. J. Kohne, and R. A. Hunter is secretary.

Charles E. Klein has been appointed regional sales manager of Whirlpool Corp., manufacturer of home laundry equipment, for the western New York and western Pennsylvania area, states John M. Crouse, Whirlpool sales manager.

Mr. Klein's territory will include the sales areas now allotted to three New York and two Pennsylvania distributors.

Other Whirlpool appointments include Ray Muldoon as advertising production manager, Glenn Clark as director of management development, and Juel Ranum as personnel director.

According to a recent announcement by G. A. Burns, vice president of Butler Manufacturing Co., the following appointments have been made for the Minneapolis division of the company: James D. Harmon, Jr., oil equipment sales manager; Albert J. Campbell, assistant oil equipment sales manager; and Dale B. Horlitz, oil equipment sales representative.

Neptune Meter Co. announces that Merle O. Hazlett has joined its sales force.

He will represent the company in the sale of petroleum meters in Montana, Utah and portions of Idaho, Oregon and Washington, making his headquarters at Boise, Idaho.

Glenn E. Seidel has been elected a vice president of Minneapolis-Honeywell Regulator Co. in charge of engineering in the company's Minneapolis plants, Harold W. Sweatt, president, announced recently.

Mr. Seidel, a member of Honeywell's engineering organization since 1943, has been director of the company's ordnance division for the past year and a half. Before that he served for a number of years as assistant to W. J. McGoldrick who, as part of his duties as vice president, has been handling the engineering activities that Mr. Seidel will take over.

Frank H. Post, sales manager, Robertshaw Thermostat Division, Robertshaw-Fulton Controls Co., Youngwood, Pa., announces that M. F. Grace is now in charge of a newly created sales territory to be known as the Texas division which will include the states of Oklahoma, Texas, Arkansas and Louisiana.

Cribben & Sexton Co., manufacturer of Universal gas ranges, has appointed Alan T. Mann, manager of advertising and sales promotion, to succeed John J. Brandt, who has resigned to enter business in Detroit, it is announced by Harold E. Jalass, vice president and sales manager.

California's Petrolane, Ltd., Opens Third Store

Petrolane, Ltd., with home and executive offices located in Long Beach, Calif., opened its third retail appliance and service store in Escondido, Calif., last October. The other two Petrolane retail appliance and service stores are located in Bishop and Yuba City.

More than 1500 adult residents of Escondido and San Diego county attended the opening of Petrolane's most recent outlet.

To stimulate public interest in the Escondido store opening, Petrolane mailed personal invitations to all of its customers and held a free drawing for major appliances. All who came in on opening day registered and received a numbered ticket. No one had to make a purchase to win and no one had to be present at the drawing to win.

The free prizes awarded at the drawing were: A Western-Holly Continental gas range, a Coleman 30,000 Btu space heater with controls and a General 30 gallon de luxe water heater.

Representatives from appliance manufacturers and distributors at-

BE KNOWN by the company you keep



REGO LP-GAS EQUIPMENT

- Rochester Criterion Gauges
- Hose and Fittings
- Weco-Trol (Automatic control)
- ICC Cylinders
- Okadee Valves



Handy Bender says



"Hard tubing is
a lead pipe cinch"

"Even the jobber that I get my tubing from didn't believe that I could bend $\frac{3}{8}$ " type L copper tubing. He wanted to sell me fittings, to hook up a new unit I was putting in at the super market. But I saved time and saved money by doing it *my way*. And the store manager said it was the cleanest job he ever saw. How are *you* doin' it?"

Ask your supply
house — or write
us.

Handy
Bender

HOLSCLAW
BROS., INC.
414 WILLOW ROAD
EVANSVILLE, IND.



L. P. gas Temperature Correction Slide Rule

- 12 inch
Hardwood
Slide Rule
\$3.00



This simplified slide rule was designed so any tank truck driver can make quick accurate temperature corrections of bulk propane gas, by setting arrow to propane temperature on scale A, set hair line to gallons delivered on scale B, directly opposite on scale C read the answer.

Tenbrook Enterprises

324 N. BUCKEYE
KOKOMO INDIANA

Mallinckrodt
ETHYL
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purified



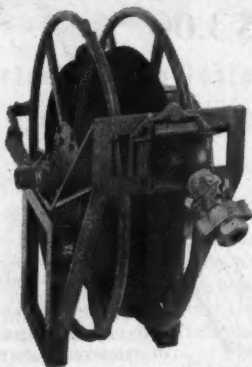
it says LOOK OUT

- The accepted standard odorant for natural or liquefied petroleum gas — gives sure but harmless warning.
- Purified — Moisture-free — PROTECTS FIXTURES. Meets all 15 qualifications of National Bureau of Standards.



MALLINCKRODT CHEMICAL WORKS
Mallinckrodt St., St. Louis 7, Mo.
72 Gold St., New York 8, New York

ACE HOSE REEL for Butane or Propane



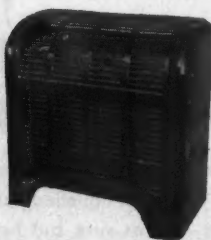
• SPRING HOSE REEL

ACE HOSE REELS save time, save money. Engineered to handle up to 50' of 1" material the ACE SPRING OPERATED HOSE REEL assures satisfactory performance. All pipe fittings are heavy duty steel and a chiksan ball bearing swing joint is a component part of reel.

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Los Angeles 32, California

ARMSTRONG Fully Vented CIRCULATOR



Model 914-V is a G A approved — made for all gases. It is very efficient in operation and provides clean, dry heat; there is no sweating of walls or windows. The valve is safely located behind a closed side door. Finished in brown porcelain enamel. 19" high, 9" deep. Made for 14,000, 17,000 or 20,000 B.T.U.

Order from your Jobber
or write for Literature
on the complete Armstrong
Heater Line.

ARMSTRONG PRODUCTS CORP.
Quality Since 1899
Dept. BP

Huntington 12, W. Va.



tended the opening and assisted in presenting the sales features of the various appliances on display. Included in this group were Howie Eden, Western-Holly Co.; John Roberts, Servel Inc.; Ray Wade and Bruce Hanson, Whirlpool Corp.; James Craig, Coleman Co., and J. S. Wilbur, General Water Heater Corp.

Petrolane executives who attended from Long Beach were: P. E. Foote, president; E. D. Davies, general manager; J. A. Storch, assistant general manager; W. A. Coglizer, manager of merchandising; Elmer Hornaday, transportation superintendent, and Ted Wehlant, Long Beach sales representative.

The opening festivities were brought to a close with an organization dinner held at the "Fireside" Cafe in Escondido attended by the Escondido store personnel and their wives and by the home office executives.

The Petrolane store in Bishop operates as Mountain Liquid Gas and Appliance Co., and at Yuba City the name is Morrison's Petroleum Service. Petrolane's fourth retail appliance store is expected to be in operation soon at El Centro, Calif.

Servel Promotes 1953 Line With \$1,000,000 Show

A million-dollar musical extravaganza went on the road in January to show Servel's 1953 line of appliances to dealers from coast to coast.

W. Paul Jones, Servel president, says that two road companies will take the "1953 Show of Stars" to 30 communities. Presentations will be made in theaters at strategic points throughout the country and attendance will be limited to distributors and dealers.

Incidentally, the expenditure for these road companies will be in addition to a \$6,000,000 advertising budget which Servel will direct in 1953.

Products which will be shown are the new "Ice-Maker" refrigerator which eliminates the ice tray; the furniture-styled, window-type, room air conditioner; horizontal and upright home food freezer; electric compression and gas and electric absorption refrigerators; and the portable electric "Wonderbar," which was first introduced last summer.

Each road show will consist of a full-scale musical production, traveling in private railways cars. Professional dancers, singers, showgirls, dramatic people and assistants will total more than 50 for each troupe.

PAUL SAYS...

"Southwest pays the freight on most items."

WE GUARANTEE all equipment advertised to be new unless otherwise specified. Pictures and literature on request. WE TRADE. WE FINANCE.

ANNOUNCING OUR NEW ADVANCED DESIGN TANKS

This is the latest and most modern design truck tank on the market today. The skirting is streamlined and encloses the meter, hoses, hose reels, and believe it or not there is very little added weight. Relief valves are recessed and has new approved guard covering. Due to the demand we are building these in only two sizes, and twin tanks. 1350 and 1700.

The most remarkable news is that these tanks are very little higher in price than our present Economy tanks, which are the lowest priced. Write for our descriptive literature and pictures. 1350 WG.....\$1995.00, 1700 WG.....\$2145.00. These are complete with pump, piping, hoses, etc., ready to deliver gas.

BRAND NEW 1953 DODGE, 118 H.P. engine, 5 speed transmission, 825 x 20 tires, 1370 twin tanks, pump, shafting, piping to do any job, clearance lights and reflectors, 50 ft. 3/4-inch hose, Federal tax, immediate delivery.....\$3845.00. You can't say we haven't got right on this price. White paint additional \$30.00.

*ELECTRO PRODUCTS

Butane-Propane & Gasoline Analyzer	\$69.25
Same with Vacuum gauge and carrying case	85.00
Tachometer (Primary)	63.75
Tachometer (Secondary w/case)	82.50
Motor Peaker (A Must for Carburetion Work)	18.50
Coil Tester	7.00
Compressor meter	11.00
Instruction Manual for all instruments (Write for literature and prices)	1.00

1947 DODGE, 750 x 20 tires, engine new in 1951, new paint, new equipment includes 1370 twin tank, pump, shafting, PTO, 50 ft. hose, clearance lights and reflectors, Federal tax, immediate delivery\$2050.00
Lettering additional22.50

1460 WG Twin Delivery Tanks U69, 1950 Code 250# WP complete with tank fittings, prime painted, plain skirting with built-in tool box. These tanks can be shipped anywhere by truck or train. Do your own installing and save. Immediate delivery\$1245.00
Custom fuel tank built in between tanks additional62.50

HOTTEST BUY IN CARBURETION

Climax Vapor Kits complete with regulator, high pressure hose, P.O.L. adapter, lead and juston block, vapor hose and clamps. All that is needed is the cylinder or fuel tank. This kit is complete. Because of a special buy we are able to offer you these kits far below original cost. Retail\$37.50
(1 - 4 units.....\$18.75) (5 or more.....\$14.25)

Climax Vaporizer. This vaporizer will fit any vapor kit (Climax, Algas, J&S, Garrison). This is the simplest and most trouble free vaporizer on the market. Retail.....\$18.50
(1 - 4 units.....\$8.75) (5 or more.....\$6.25)

1950 IHC L 162, 2 speed axle, 825 x 20 tires, complete with used 1220 WG single tank, pump, hose, etc. This unit is a real buy and should sell for much more, but we offer it complete ready to deliver gas.....\$2445.00
Pittsburgh small reset meter and diff. valve, additional153.50

Neptune Direct Reading Meter.....\$308.00
Pittsburgh 760 Meter, small reset.....\$285.00
Viking Pump w. mechanical seal.....\$99.00
Roper 2 A\$96.75
Franklin Pump Grease, stops leaks.....\$3.25
3/4" LPG Valves\$5.84

*Denotes items that are freight prepaid if check is sent with order, or if credit has been approved.

Paul L. Maxwell
SOUTHWEST GAS EQUIPMENT CO.
Liberal, Kansas

BUTANE-PROPANE News

Classified

Display-classified advertising rates can be secured by writing publisher. For regular classified advertising, set in 7 point type without border or display, the rate is \$1.00 per line per insertion. Count each letter and space between words and allow 46 letters and spaces per line. Minimum charge is \$3.00 per insertion. Classified advertising payable in advance. Copy and payment must reach publisher's office prior to first of month preceding date of publication.

HELP WANTED

SALESMEN NOW CONTACTING L.P. gas distributors, cylinder and tank manufacturers to handle major line of equipment by a leading manufacturer. A number of good territories are still open. Write Box 900, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, Calif.

WANTED — EXPERIENCED SALES REPRESENTATIVES. We have openings for aggressive sales representatives with experience in sale of LP-gas and anhydrous ammonia systems. Openings in Middle West or Middle Southeast. State experience and full information in application to: General Manager of Sales, The J. B. Beard Company, Inc., P. O. Box 1115, Shreveport, Louisiana.

SERVICE AND INSTALLATION MAN with wide experience in commercial and industrial propane equipment. Excellent working conditions. Steady year around work. Top pay. Yearly paid vacation. Box 105, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

SITUATIONS WANTED

NEED AN EXPERIENCED LPG MAN TO manage your plant? Can take over complete responsibility of your business. 15 years in the industry, all phases. Also design and construct bulk plants. Please reply Box 110, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

BUSINESS OPPORTUNITIES OFFERED

DISTRIBUTOR WANTED FOR GOING bulk propane business in Eastern Oregon. Investment required in tank truck, pick-up and inventory. Plant and show room well located and growing rapidly. Applicant must be experienced. Write Box 115, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

FOR SALE—LPG BUSINESS COMPLETE with 18,000 Gallon Storage Tank, Compressor, Pump, Office and Warehouse all together on Railroad siding. 1400 gallon delivery truck, pick-up, all tools and equipment ready to step into. One of the best locations in State of Idaho. Priced right for quick sale. Contact Knu-Gas Company, 110 Second St. South, Nampa, Idaho.

FOR SALE—FAST GROWING L. P. GAS business in Northwest Missouri. Will sacrifice for \$10,000 cash because of ill health. Three can handle this business. We have one 1,200 gal. tank truck and two bottle gas trucks, 300 bottle gas customers and 125 bulk gas customers. \$9,450 annually. Well established! Write M. Shewmaker, Bottle Gas Service, 2914 North Second Street, St. Joseph, Missouri.

WELL ESTABLISHED PROSPEROUS Central States Propane Gas Business, Tank and Bottle, Direct Retail also Dealer Organization; adequate Bulk Storage, Equipment and Facilities in excellent condition; annual volume approximately 3,000,000 gallons. Gross sales exceed \$700,000. Owner will sacrifice account ill health. \$50,000 cash will handle, balance terms to suit if experience and ability warrant. Will rent or sell real estate and bulk storage. Inquiries must give evidence of financial responsibility which will be verified before interview. Apply Box 120, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

BUSINESS OPPORTUNITIES-WANTED

BOTTLED OR TANK GAS BUSINESS. Preferably both cylinder and bulk delivery. Advise gallonage, number customers, data on plants, trucks, etc. Write Box 125, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

WANTED TO BUY

Privately owned LP-Gas business. 500 to 2,000 customers in Ohio, Pennsylvania, Indiana or Kentucky. Wholesale business preferred. Write Box 333, Barnesville, Ohio.

EQUIPMENT WANTED

WANTED FOR EXPORT—6 LOW PRESSURE, 8 high pressure 10,000 to 30,000 gal. cap. storage tanks. Leston Corp., Rosemont, Pa.

WANTED: TRUCK TANK SUITABLE FOR mounting on a four wheel trailer from 1000 to 2000 gallon capacity. Must pass all regulations. L. A. Cugnet & Co., 27-31 Duncan Street, Yorkton, Saskatchewan.

FOR SALE — TRUCKS & TRAILERS

THIS IS IT! A NEW 1953 F-20B REO GOLD Comet chassis, 8:25 rear, 7:50 on front, completely equipped with 1250 WG Nor-Tex twin propane tanks, skirtd, plumbed, fuel tank, KK190 Viking pump (with mechanical seal) 50' filler hose, excise tax paid, ICC lights, Power Take-off with Spine Jack Shaft, Aluminum paint over red oxide. Ready to go with prices starting at the low price of \$3950.00 F.O.B. Denton. Meter, LPG carburetion, etc., extra at reasonable prices. Why don't you write—wire or phone today. Nor-Tex Products Company, National-Sales Agents for North Texas Tank Co., Phone Central 5416, Denton, Texas.

READY FOR WINTER?

Immediate Delivery - New 1952 2 TON 2 SPEED CHEVROLET

With twin 1250 WG propane tanks equipped with new mechanical seal Corken 50 GPM pump, fuel tank, filler hose, Pittsburgh reset meter, Hannay hose reel, 20# fire extinguisher, white enamel, federal tax paid.

\$4484 f.o.b. Denton, Texas

NOR-TEX PRODUCTS CO.

Box 775, Denton, Texas

FOR SALE: 1950 HEAVY DUTY G.M.C. Truck equipped with 1600 gallon propane tank, Smith pump, Neptune meter and hose. Ready to go at \$2775.00. Gio Bottle Gas, Mitchell, South Dakota.

FOR SALE—TWIN 4100 W.C. CAPACITY U-69 200 lb. W.P. transport trailer Reyco tandem. Excellent condition. \$4975.00. Call or wire West Alabama Butane Co., Phone 56, P. O. box 232, Demopolis, Alabama.

NEW 1953 TWO TON GMC WITH NEW 1337 gallon propane tank fully skirtd, ready to go with pump, hoses, etc., and new Algas combination carburetion. \$3990.00. Box #47, Eldon, Missouri.

FOR SALE—TRUCKS & TRAILERS—Cont.

3,490 WATER GALLON PROPANE SEMI- trailer twin tanks, U-69 code, 200# WP, good 10:00x20 tires, ready to drive away, \$2495 or will trade for delivery truck with 200# tank. Boone LP-Gas Co., Grenada, Mississippi.

1,250 W.G. SINGLE PROPANE TANK, 250 lb. W.P. mounted on 1951 Int. L-150, Roper pump, 50 ft. 3/4" hose, piped complete, ready to go. Tank and equipment is brand new, truck good condition with 28,000 miles. \$2,695.00. Meter and propane carburetion can be installed by us for \$225.00 additional. White River Distributors, Inc., Batesville, Ark.

1952 INTERNATIONAL L-160, 2 TON, 2 speed axle, heater, 825 x 20 rear tires, 1500 W.G. twin propane tank, Smith TC-2 pump, Pittsburgh meter, 50 ft. hose, piped heavy duty and ready to use. Truck, tank and all equipment is less than 8 months old with 19,000 miles. \$1,200.00 under new price. This bargain won't last long. Phone White River Distributors, Inc., Batesville, Ark.

1951 INTERNATIONAL L-130, 1 TON truck, dual rears, 22,000 miles, excellent condition with brand new 600 W.G. single propane tank. Just the thing for trailer camp filling or spare truck. \$1,950.00. Can add new pump, carburetion, meter, hose and piping for additional \$450.00. White River Distributors, Inc., Batesville, Ark.

BRAND NEW, 2 TON FORD OR CHEV., 2 speed axle, 825 x 20 rear tires, with new 1400 W.G. twin propane tank, \$3,585.00. We will pipe to your specifications with any make or model pump, meter, carburetion, hose, etc., and **SAVE YOU MONEY.** We can furnish any make or size truck and tanks from 600 gal. to 2400 gal. single or twin. We are in the gas business and **KNOW WHAT IT TAKES** to make an ideal delivery truck. Hundreds of satisfied customers are our best recommendation. See us before you buy. White River Distributors, Batesville, Ark.

AT LAST—Replace that worn-out engine with a New REO

Now you can buy a 142 H.P. Reo LPG powered engine, with replacement kit for installation in any make truck or tractor.

Call, Write or Wire
NOR-TEX PRODUCTS CO.
Box 775, Denton, Texas

FOR SALE — TANKS & CYLINDERS

CYLINDERS ICC, 4B240. BRAND NEW. 100 lbs. capacity, TW 70 lbs. \$13.95, valve extra. Also 20 lb. capacity with Rego valve complete, \$9.45. Lower prices for large quantity orders. A complete stock of regulators and fittings for immediate shipment. F. O. B. Cleveland, Ohio. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland 15, Ohio.

AT DEPRECIATED PRICE, 1400—60#— 4B240 Pressed Steel Tank Company cylinders. City Gas Service, Inc., Wisconsin Rapids, Wisconsin.

FOR SALE—NEW 18,000 W.G. PROPANE Tanks, New 30,000 W.G. Propane Tanks. Shipped from Nebraska. March delivery. All tanks 200# W.P. U-69 with or without fittings, ladder, platform, visual or rotary gauge. Write or wire Keith Knigler, Manufacturer, Culbertson, Nebraska.

FOR SALE—TANKS & CYLINDERS—Cont.

FOR SALE—ONE 836 GAL. BUTANE Tank. Good as new. Cajon Mt. Camp, Wrightwood Star Route, Box #36, San Bernardino, California. Phone Cajon #3.

FOR SALE MISCELLANEOUS

NEED A TRUCK PUMP? New KK124 Viking \$70.40

The full price in exchange for your old Viking. New Fairbanks-Morse platform scales w/automatic shut-off for cylinder filling \$94.76 f.o.b. Nor-Tex Products Co., Box 775, Denton, Texas.

FOR SALE—IMMEDIATE DELIVERY! Eureka Smokehouse Burner Assemblies! For meat smoke houses using bottled gas. Completely automatic. Clean filtered smoke. Distributes heat uniformly. Low gas consumption. Automatic temperature and pilot control. Less product shrinkage. Easily installed. Write for descriptive pamphlet. Eureka Equipment Company, P. O. Box 396, Beloit, Wisconsin.

FOR SALE—FAMOUS BAKER ALCOHOL pumps for injecting alcohol into propane-butane cylinders. Used by leading gas distributors for eliminating moisture trouble. Send \$39.95 for pump complete with fittings. Baker Engineering, Malone, N.Y.

"STOP THAT LEAK". ITS EASY TO FIND with Leak Detecto Brush. \$3.75 ea. Quantity discounts. Solution, 5-gal. \$7.50. 1-gal. \$1.75. Gas Appliance Stores, Inc. Box 5057, Columbia, S. C.

GALVANIZED HOOD, STAND, AND BASE to protect your two cylinder installation; \$5.45 each. Packed 10 to a carton. Also Rego or Fisher 2-cylinder regulator, T Block, and 2 pigtail at \$4.65 each. Sold on satisfaction or money refunded. Home Gas Equipment Co., 1301 Carnegie Avenue, Cleveland, Ohio.

COPPER TUBING—3/4" OD X .032 WALL—50 ft. coils, lots of 10 or more \$4.95 per coil. Less than 10 at 50c per coil. Freight prepaid on 20 or more coils. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland, Ohio.

ALUMINUM CYLINDER PAINT. EXTRA heavy body, long lasting, 10 minute drying, for spray or brushing. List price \$4.30 per gallon. Your Cost \$2.85 per gallon. Freight prepaid in lots of 20 gallons or more. Finest quality paint you can buy for bulk tanks or cylinders. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland 15, Ohio.

120 NEW SERVEL GAS REFRIGERATORS in original factory crates, model BN 600 A, 6 cu. ft. Price \$132 in quantity. Low delivery cost anywhere. Call, write or wire. BEACH REFRIGERATOR CO., 196-11 Northern Blvd., Flushing 58, New York City. Phone Flushing 7-6161.

180 SERVEL GAS REFRIGERATORS - K410 at \$18, L400 at \$20, M400 at \$22. 4 cu. ft. Used, perfect operating condition. Clean, attractive lot. Low delivery cost anywhere. Call, write or wire. BEACH REFRIGERATOR CO., 196-11 Northern Blvd., Flushing 58, New York City. Phone Flushing 7-6161.

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OIL INDUSTRY EMPLOYMENT SERVICE. For technical, trained LPG personnel. Write us. Tom Robinson, Owner, 405 Tuloma Bldg., Tulsa, Oklahoma. 4-5974.

INDIVIDUALLY DESIGNED BULK PLANTS

H. Emerson Thomas
& Assoc., Inc.
Westfield, N. J.

LET MY LP EXPERIENCE WITH OVER 100 operating properties increase your profits. Floyd F. Campbell, Management and Sales Consultant, 1495 Forest View Drive, St. Louis 22, Missouri.

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